Telephony.

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WITH GREAT PROSPERITY CONTINUING, BIG BUSINESS IS WARNED

General business in the United States is moving along smoothly, and the financial experts who did not think the great prosperity year of 1926 would be duplicated in 1927 are beginning to change their minds.

Government figures showing that exports for January and February were over 43 million dollars ahead of the same two months of last year also help to increase confidence. Another encouraging factor is the report that the first nine weeks of 1927 showed the loading of 240,000 more cars of revenue freight than for the same period in 1926.

With Congress adjourned, there is a feeling of relief in money circles, and the plans of big business to organize consolidations in leading industries are being revived. However, knowing that the strong anti-monopoly principles of the American people are still very much alive, the merger artists are moving with caution.

The government has put a stop to several proposed mergers, and the nearer the presidential election of 1928 approaches, the more vigilant will be the surveillance of big business.

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Just because a thing is big it is not necessarily undesirable or wrong. The danger is that bigness means greater power, and the temptation to use that power for the benefit of the comparatively few and against the interest of the many is hard to control. That is why monopoly, or a near monopoly ruthlessly handled, is hateful to the public.

The wise business leaders know that when all the units of a great industry are consolidated in one group, trouble is sure to follow. For well-known reasons the public does not favor such a situation, and nobody understands that better than the government agencies who are watching such developments.

In the telephone industry there are two groups composed of companies serving their territories acceptably. It is probable that certain readjustments between the Bell and Independent groups may be necessary for service reasons, but the relative balance between them should be maintained. That is the belief of conservative men on both sides. To disturb that balance would be courting trouble in view of public sentiment.

* * * *

Opinions along similar lines are expressed in an editorial entitled "Bigness" in the last issue of the Nation's Business, published by the Chamber of Commerce of the United States. Coming from the spokesman of the leading business interests of the country, the warning is significant. After asking if big business is a force for good or evil, the editorial says:

"A generation ago this country set on foot a campaign of 'trust busting,' of regulation, that has not yet ended. It may start it up with renewed power. The easy answer is: 'There is no evil in bigness.'

But that answer is an evasion. There may be no evil in bigness, but there is power — and power may work for evil or for good. So with expanding business and a greater concentration of power.

If all the makers of shoes or sugar or shingles were in one group dominated by one mind, they might so improve or cheapen their products that all should benefit; they might so lower quality or raise prices that all would suffer.

* * * *

And there lies the lesson for American business. As it grows great, its responsibilities grow great. It can, and we believe it will, exercise those powers wisely and for the common good. It is all well to tell me that bigness isn't evil; I know it isn't. But if I see an elephant in the street, I'm apt to dodge into a doorway until I know that it is under sensible control."

It is to keep the wild elephants of big business from trampling on the public who have equal rights in the street that the federal government is expected to keep up its campaign against monopoly. The Federal Trade and the Interstate Commerce commissions are there for that purpose. Likewise so is the Department of Justice; and Congress, with all its oratory, is also an agency which rather welcomes an opportunity to protect the public against business mergers.

All things considered, then, Nation's Business' warning may be regarded as timely. Big business should watch its step to prevent taking a misstep.

Somebody has been telling the farmers in some of the Middle States that the consolidations and readjustments which are taking place in the telephone field mean an increase in rural rates, and an effort is being made to organize them against any advance.

The Illinois Agricultural Association has issued a special bulletin on the subject, and urges its members to oppose any move to raise rates. The association also warns the farmers to be ready to fight any attempt to abolish free county toll service, and charges that rural rates have been raised without authority.

In most states farmers have enjoyed cheap telephone service so long that they may naturally think they are entitled to below-cost rates forever. Probably in many cases the service has not been first-class, but invariably it has been worth much more than the low rates paid.

If consolidation of farm lines and a more efficient reorganization produce a better grade of service, and the state commission thinks it calls for higher rates, the farmers ought to accept the situation and be glad to have better facilities. The more progressive undoubtedly will, for if any class of people need the telephone, it is the dwellers on the farm.

The Illinois Agricultural Association is in poor business trying to stampede its members into a general movement to resist any adjustment of telephone rates without regard to the merits of individual cases. Neither the Illinois commission nor any service company needing better rates, should be frightened by this premature complaint.

* * * *

It has come to be a fixed habit for the reformers to urge business concerns to economize, to give better service and to adopt various improvements. This is especially true as regards the public utilities. The service company which makes the slightest slip is severely criticized, and an effort is made to have the state—the government—that regulates it call it to account and bring it to time.

This is in spite of the fact that the government agency summoned to do the correcting is itself usually in greater need of improvement in matters of economy and efficiency. Maybe the reformer observes the increasing army of government job-holders and wants to dig up some employment for them. So he "sics" them on to the utility companies.

* * * *

Twenty-five years ago there was one public official for every 300 of our population. According to a significant address made recently before a Rotary Club meeting in a Pacific coast city, there is today one official for every 20 people in the United States, and the speaker said that at the present rate of increase there will be one public official for every three or four persons within 25 years.

The continual multiplying of laws, and the appointment of job-holders to administer them, is the cause of it all. There is truth in the statement: "The public trough into which taxpayers pour their money is becoming so overcrowded that the tax-eaters step on one another while feeding."

If the public service companies were thus overmanned, what rates they would have to charge if the public allowed it!

COMING CONVENTIONS.

Kansas, Manhattan, Gillett Hotel, April 5, 6 and 7.

Iowa, Des Moines, Fort Des Moines Hotel, April 19, 20 and 21.

Ohio, Columbus, Neil House, April 27, 28 and 29.

Pennsylvania, Harrisburg, Penn-Harris Hotel, May 3, 4 and 5.

New York, Rochester, Powers Hotel, May 25, 26 and 27.

Wisconsin, Madison, Hotel Loraine, June 7, 8 and 9.

Texas Meeting Features Financing

Annual Gathering of Texas Independent Association Told of Practices of Promoters of Consolidations in Field and Shown Dangers to Industry—Resolution Adopted Urges Action by Telephone Men—Traffic Conference Strong Feature

By L. S. Gardner

Taking into consideration the local conditions that have prevailed throughout Texas during the past year, the 22nd annual convention of the Texas Independent Telephone Association held at the Texas Hotel in Fort Worth, Texas, March 15 to 18, was in every way a most successful meeting.

The registration showed an increase over last year which was not expected by those officials who had prepared the program. Without a doubt the Independent telephone people of Texas are becoming more interested in the work of the association and the meetings that are being held. With a splendid program covering those subjects that are at this time vitally interesting to the Independent telephone people, the membership came from all parts of the state.

At the business session the members of the association re-elected the entire board of directors, which included four new members to fill vacancies caused by deaths and resignations. The directors then re-elected all officers.

The officers re-elected for the ensuing year are:

President, R. B. Still, Tyler, general manager, Gulf States Telephone Co.

Vice-President: F. W. Greber, Brownwood, vice-president, West Texas Telephone Co.; J. B. Earle, Waco, president, Texas Long Distance Telephone Co., and John Y. Rust, San Angelo, president, San Angelo Telephone Co.

Secretary, L. S. Gardner, Waco, auditor, Texas Long Distance Telephone Co.

Treasurer, D. J. Johnson, Santa Anna, president, Santa Anna Telephone Co.

It was 2:00 o'clock on Tuesday afternoon, March 15, when President R. B. Still called the first session to order in the Crystal Ball Room, of the Texas Hotel. After expressing his appreciation of the attendance at the opening meeting, he introduced Rev. L. D. Anderson, Fort Worth, pastor, First Christian church, who gave the invocation.

A. B. Spencer, Fort Worth, secretary, Fort Worth Chamber of Commerce, was introduced and delivered the address of welcome. Sam H. Shutt, Waco, general superintendent, Texas Long Distance Telephone Co., responded to the address of welcome.

President Still then delivered his annual address in part as follows:

Tendency Toward Consolidations.

"In my remarks to the convention just one year ago, I called to your attention a tendency toward consolidations, either by outright purchase or by physical or financial consolidations, through which the present owners would retain their interest in and connection with the business, and

stated that this would necessarily reduce the number of Independent companies in the state from year to year.

During this one year's time quite a few telephone companies have passed from existence by reason of consolidations in the Panhandle and Plains sections, and properties have passed into the hands of two larger and newly-formed operating companies. At the present time there are being considered other mergers, and there are prospective purchasers in the field attempting to buy up a number of the small companies and some of the larger ones.

I cannot say that the prospects for purchase outright are encouraging, but there will undoubtedly come about consolidations from time to time, which will mean the building up of larger Independent companies, probably improved management; and the consolidations will place the companies in better position to finance themselves.

Let us hope that whatever further is done along this line will be done by people who are interested in operating these properties, who will retain and place in their organizations the best telephone talent to be found, to the end that the purchasers of securities, the telephone-using public, and the employes, who have built up the business for their owners, may all profit by the changes.

If these consolidations are simply financial and brought about by a desire of security bankers to form mergers in a manner that may profit, regardless of the effect upon the security holders, the public and the employes, then the mergers will be a farce and will ultimately work to the detriment of all legitimate telephone business, and will weaken the position of those who are in the business with a desire really to serve and who have the talent with which to render the service that the public is certainly entitled to.

Allow me to urge that all Independent telephone people, who now have property, remain in the business because it is one of the best and safest to be found and is growing in its importance day by day.

Just bear in mind that if you sell your properties, you will have two problems to solve, the first being the reinvesting of the proceeds of the sale; and second, that of finding another vocation in which you, yourself, will fit and be satisfied. Let me further say that to you men raised up in the telephone business, that the chances are that, if you sell your properties, you will spend your remaining days hunting something in which to engage which will satisfy you as well as you are now satisfied.

Importance of Our Industry.

"Probably many of you do not know, and the general public certainly does not know, that Independent telephony holds an important place as an industry. In the territory served by the Southwestern Bell telephone system, made up of Texas, Oklahoma, Arkansas, Missouri, Kansas and a small section of Western Illinois, the Independents operate approximately 750,000 subscriber stations, while the Bell company operates 1,250,000.

Three-quarters of a million telephones in this territory is no small showing, and it certainly indicates an industry of much importance. These figures should indicate to ourselves and the public that ours is a

President R. B. Still, in His Presidential Address, Made Pertinent Comments Upon Several of the Important Problems of the Industry.

business of importance and one well worth preserving.

The telephone habit in our people is still growing. The users are more and more finding the great time-saving element in the use of both local and long distance service. Hence, it stands to reason that all territory now held by us will continue to develop, and the business increase in importance, and therefore, in value.

Greatly responsible for the continued growth of the telephone business, and of the telephone habit, is the continued improvement in the service we are rendering, both local and long distance; in other words, the service is being made more attractive and more useful with each change that is brought about in our methods of handling and in our plants and the equipment employed by the service.

Recent changes in toll operating methods have done much to bring about an improvement; and recent revisions in long distance toll rates and schedules have been of great advantage in better filling the needs of our patrons. It is my opinion that, under the present schedule and toll rates, we have by far the most ideal rates ever worked out—one that is equally advantageous to the owners of telephone properties and to our customers.

In all of these changes your association has cooperated with the Bell company to the end that just as nearly as possible the same class of service, and under similar rules and regulations, will be offered by the Independents as by the Bell. Much time and attention have been given during recent years by your association to matters of just such importance as this. We believe that by our cooperation we have helped the Independent companies and have been partly responsible for bringing to the patrons of our members, all of the changes that have come to the patrons of the Bell system.

Let me further call your attention to the fact that in our Texas Independent exchanges of moderate size, are many of the very most modern systems to be found anywhere. Labor and time-saving features have been employed in our central office equipment and the best of plants, so far as outside construction is concerned, will usually be found. In other words, our plants are second to none in the territory and are capable of rendering the best service to be made.

I. C. C. Depreciation Order.

"Without a doubt one of the most important undertakings faced by the entire telephone industry at this time is the carrying out of the depreciation order of the Interstate Commerce Commission recently passed down to us, and giving a limited time of a few months in which the hundreds of Class A, B and C companies are to submit to the commission their depreciation reports, upon which will be based and promulgated a rate of depreciation which telephone companies must and shall charge against operating expenses and set aside in a depreciation reserve for the replacement and obsolescence of plant.

The United States Independent Telephone Association, through the cooperation of state associations, has for two or three years been working with the Interstate Commerce Commission, representing your interest in this important matter. It has well represented you to this time and will continue to do so.

Much depends upon properly getting this entire question before the Interstate Commerce Commission and you are facing dangers in it that, unless you do carefully listen-in, you will know nothing whatever about. Your future rates and earnings greatly depend upon whether or not the commission is supplied with all necessary data and all argument favoring our plan of depreciation of properties.

For financing purposes the railroads seem to be taking an entirely different position than the telephone companies have always taken. And there are promoters of consolidations of telephone properties who, in order to make a favorable earning showing in their financing, are reversing themselves entirely upon the necessary depreciation for telephone companies.

If the commission should decide that the railroad companies are correct, and that these few telephone financing com-

panies are correct in their attitude, then our whole work of the past along this line will have been upset, and those companies that are now making only a reasonable earning will hereafter be considered making an unreasonable earning. Hence rate adjustments will be forced upon us that will mean a calamity to our industry.

Public Relations.

"I believe that our relations with the general public are the most satisfactory that they have ever been. Your association, your annual conventions, your district meetings, and other conferences are doing much to bring about this good feeling on the part of the public by not only having the public understand our business but by having us better understand the business of others and the needs of the public. We have labored hard to bring about these very effects, and we believe that it has been with a considerable degree of success.

Through our fair method of dealing with our patrons and our prospective patrons, and by bringing to them every service, every advantage and the fairest treatment as to rates and charges without the legislative regulation of our industry, we have done much to dispel the demand of a few years back that regulatory measures be passed by our legislature.

I urge that we continue along this line and that we thoroughly convince ourselves that our patrons and others should be given the same treatment without legislation that they would receive with it. If we religiously work toward this end, we shall continue to find ourselves in favor with the public and will not have thrust upon us hardships or utility regulation that would certainly come to us in a developing state like Texas.

There will probably come a time after we have gone much further with the development of the empire when commission regulation in Texas will be practical, but at the present time it certainly would not. The telephone business is still being pioneered in many sections of our great state, and this pioneering should be permitted to continue; otherwise the needs of the people will be neglected by the necessary hardship of regulation which would take away from us the freedom of action that we now possess.

During this session of legislature, there were introduced three separate and distinct bills proposing utility regulation by giving the railroad commission the powers of the utility commission in the regulation of all utilities. Your association worked carefully in representing you before the legislature and very few of you were put to the expense or the trouble of making a trip to our state capital in your own interest.

We endeavor to carefully represent our members and with the least possible trouble and expense to them. Of course, we expect and have the right, when it is necessary, to call upon you for such assistance as you are in a position to render, of a cableman or a switchboard man, for instance, is to borrow the services of such a specialist from some company that possesses the talent and is in a position to share his time with you occasionally. This, of course, is not a thoroughly dependable arrangement because it does not always make talent available at the time you most need it.

This handicap could most likely be greatly overcome if through the associa- and we have never had the slightest difficulty in getting this necessary cooperation.

A Plant Handicap.

"One of the handicaps that many of our companies of small or moderate size are working under is that brought about by the impracticability of each company maintaining a corps of trained specialists in plant work. We are limited because of many of the properties not being large enough to justify these specialists.

The only relief they have, when in need tion a kind of an exchange could be operated through which, by proper scheduling, a few cablemen and a few switchboard men, and other specialists for that matter, would be available for Independent telephone work for any company calling for their services. I mention plant needs because I believe that they are greater than in other lines. However, such an arrangement could work equally well with the commercial or traffic departments.

L. S. Gardner, Auditor of the Texas Long Distance Co., Waco, Was Reelected Secretary of the Texas Association.

I believe there is an opportunity to work out such an arrangement in a manner that many of the companies now neglecting certain work might have available these talents in a manner that the handicap might be overcome."

Lon A. Smith, Austin, member of the Texas Railroad Commission, was introduced and addressed the meeting on the subject, "Optimism of Faith and Devotion of Service." He outlined the progress of communication between human beings from ancient times until the modern telephone and wireless inventions.

The business and social advantages of modern methods were pointed out by Mr. Smith, who also lauded the telephone girl who sits at the intersection of the myriad lines and holds inviolate the secrets of her community to which she listens-in.

The following convention committees were then appointed by President Still.

Auditing: C. W. Jacobs, Tyler; Merton Swift, San Marcos, and Jean Shotwell, Lufkin.

Resolutions: John Y. Rust, San Angelo; C. D. Longserre, Frankston; and S. J. Bennett, Fairfield.

The Second General Session.

Calling the Wednesday morning session to order, President Still presented D. E. Roach, Orange, Texas, sales manager of the Texas Creosoting Co., who gave an illustrated talk on "Some Reasons for the Increasing Popularity of Creosoted Pine Poles."

He reviewed the history of wood preservation which extends back 4,000 years, he said. With the aid of lantern slides, Mr. Smith showed how pine poles were treated in a way to increase their life of usefulness.

Program Distribution Service

"Radio Re-Distribution" was the subject discussed by H. N. Faris, technical engineer, United Trust Co., Abilene, Kans.; L. W. Scherer, secretary-treasurer, Yale Telephone Co., Yale, Okla.; and B. H. Piepmeier, Diversified Investments, Inc., Kansas City, Mo.

Mr. Faris discussed the technical problems that arise from telephone companies distributing programs received over radio. He explained in detail just what the service is and what the subscriber expects from the telephone company.

He predicted its growing popularity, but warned the telephone men to make a thorough investigation of their special case before they went into it. "Look before you leap," he advised.

Idle facilities of the telephone company may be put to use when program service distribution is taken up, L. W. Scherer told the audience. He said that some companies based their rate for radio service on the distance the subscriber is from the station from where the programs are distributed. When this is done 75 cents for each quarter of a mile is considered a reasonable rate by some telephone men.

"One company," said Mr. Scherer, "has over 1,000 subscribers for the radio service, and it is reported that most of the subscribers are well pleased with the service. This company charges about $5 a month for homes; $8 for business addresses or establishments; $15 for small clubs and $25 for large clubs or dance halls. This is the monthly charge."

He warned against the mistake that has been made by some companies. "Charge enough for the service," said he, "so you can render real and efficient service."

B. H. Piepmeier, Kansas City, Mo., engineer, Diversified Investments, Inc., spoke at length on the results of his close study of this new phase of the telephone and radio business. He also advised that the telephone man should be extremely careful in entering this business. He expressed his belief that as time goes on it will grow in popularity and the telephone-using public will be turning more and more to the use of the program service furnished by the telephone company. Mr. Piepmeier's paper will be published in full in a future issue.

Judge S. A. Lindsey, Tyler, president, Gulf States Telephone Co., spoke on the subject "Telephone Consolidations and the Effect." He told the Independent men they were doing the wrong thing when they permit a consolidation unless it is for the good of the subscriber and that there is a certainty of the continuation of as good or better service as they had built up.

He criticized investment bankers who promote telephone consolidations for the sole purpose of refinancing the institutions, without taking into consideration the effect it will have on the service to the public.

At the general session on Wednesday afternoon R. W. Hedrick, Jefferson City, Mo., was the first speaker, talking on the subject, "Practical Telephone Problems."

Mr. Hedrick made a forecful address, touching on many important problems that confront telephone managers and owners, from time to time. He offered suggestions as to how to prevent them or remedy them if actually encountered.

G. W. Robinson, Saint Paul, Minn., president, Tri-State Telephone & Telegraph Co., and vice-president, United States Independent Telephone Association, was introduced and spoke on the recent order of the Interstate Commerce Commission on depreciation.

Standing of Telephone Securities.

He also advised against selling telephone properties to people inexperienced in the telephone business, on which subject he said, in part:

"I question whether the telephone industry is going to welcome into the field the people purchasing telephone property not with the intention of operating it, not being telephone men, but burdening those properties with securities with which to feed a hungry public.

People who have been in the telephone industry for many years are gratified at what they have accomplished. I do not know any class of securities that has been so very free from exploitation. Investors are ready to handle good telephone securities at any time. This has brought about conservatism in the telephone industry, by the business-like way of handling properties.

The investors feel that for safe investments there is nothing that stands higher today than good telephone securities. We, of the industry, believe that these telephone securities, if they are based on fair property value and the net earnings are arrived at after deducting all necessary expenses, are the best that an investor can buy anywhere in the United States.

Vice-President George W. Robinson of United States Association, Showed Some of Fallacies in Recent Circulars Issued Relating to Telephone Securities and Properties.

"There have come to my desk a number of circulars, bonds, and stocks of properties that have been recently acquired, and it will be well to make a very brief analysis of one or two of them. One thing that these people have neglected—failed to mention in their operating cost—is depreciation.

Promoters' Circulars Analyzed.

One of these circulars was a violation of the code of ethics in my own state. There was a small property that our engineers and experts valued at $105,000. The property consisted of 750 stations operated in 10 towns—not a large, not valuable property. There could not be a very large amount of cable; there could not be very much underground construction. Therefore, it is not probable that a very high per station value could be properly assigned for those properties. It included 1,100 miles of rural wire.

A telephone man's valuation of that property at the top would be $105,000. This property was purchased for $115,000. The purchasers employed outside engineers who put replacement value at $449,205 and depreciated value at $395,350. The gross earnings on this property were equal to 8 per cent of the depreciated value. It is generally considered that properties have to earn about 33⅓ per cent. The net earnings were $17,046.98—4.3 per cent on its depreciated value.

These men buy property that will pay them net 4.3 per cent. I think they must be philanthropists, having in view only the giving away of service to the public.

Depreciation requirements on this property at the rate of 6 per cent would not be an abnormal rate to charge; gross earnings of $23,721 or 71 per cent; $9,628 for operating expenses; $7,800 payment upon interest.

They purchased the property at $115,000; have placed bonds on that property, which they are operating, and offered the bonds to the public through newspaper advertising of two investment houses, a bond issue of $130,000. I feel that the education of some of us has been very sadly neglected and that we do not know how to finance our telephone properties.

Another circular had blocked off in large letters on the front page: 'Net earnings for the year ending June 30, 1926, shown by the report, and available interest, are annually three times the bond interest requirements.'

This property consisted of 14,498 stations in 16 towns; valuation depreciated, $2,962,886, or $205 per station. Gross earnings on that valuation are 14 per cent, and interest of 33⅓ per cent on the value of the property; net earning $218,257; requirements for depreciation at 5 per cent; $8,764 for federal taxes; $75,000 requirement for interest on these bonds, which would leave an operating deficit of $13,651; that is, they will be short, not being able to pay any return to the stockholders.

The mortgage requires the company to set aside each year for depreciation 15 per cent of its gross earnings, which would be $61,608 or 2 per cent of the value placed on the property. They neglected the cost of depreciation.

They say they are earning an amount available for interest of nearly three times the annual interest requirements. An analysis of their own statement shows that that earning is not available for interest. They are required to set aside 15 per cent of their gross earnings as reserve for depreciation. The book value on their properties goes down, and they increase their rate schedule. I cannot see any relation between gross earnings and depreciation requirements. If the book value comes down, then depreciation requirement is less.

It appears to some of us in the industry that we are confronted with the danger of there being torn down a structure that we have spent the best part of our lives building. We, in the industry, will welcome any party who is coming in with the purpose of legitimately operating telephone property, of giving proper service, and properly maintaining their properties and helping us continue the high standard of telephone securities; but I do not believe that you or I want to see that structure,

that we have spent so many years in building, torn down.

This question of depreciation is difficult to understand. We have experienced difficulty in getting to customers and the public this idea of depreciation. If you begin to talk to them about wear and tear, inadequacy and obsolescence, they do not know what you are talking about.

We were entertaining a group of people in our exchange building—not a particularly high-grade group—and they did not know much about telephone business. One of our men tried to explain some of the problems of telephone men, and he spoke of depreciation, wear and tear, inadequacy and obsolescence.

A blank look came over the faces of the audience, so he thought he would try to explain his meaning to them. He said he assumed that they were all family men, having wives and children, and as heads of the house, occasionally lay aside clothing, on account of the fact that it was worn out. This is wear and tear.

The children have to lay aside their clothing, not because it is worn out, but because they have outgrown it. This is inadequacy. Your wife also has to have new clothes. She lays aside her old clothing, not because it is worn out, or that she has outgrown it, but because it is out of style. This is obsolescence."

V. E. Chaney, Kansas City, Mo., treasurer, Diversified Investments, Inc., discussed the depreciation order from an accounting viewpoint. Due to the fact that a number of Independent telephone people were much interested in this subject a special meeting was announced for Thursday morning at which Mr. Chaney continued the discussion and conducted a round table talk on the subject.

Telephone Financing.

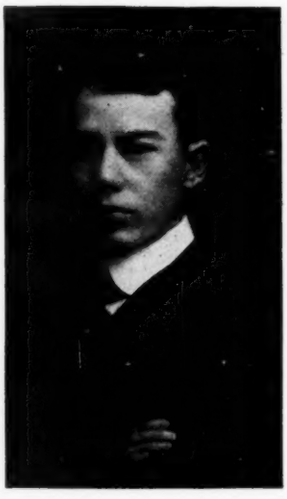
"Telephone Financing" was the subject of a very interesting talk by E. C. Blomeyer, Kansas City, Mo., chairman of the board, Diversified Investments, Inc., in which he said, in part, as follows:

"There is a fundamental difference between the electric light and power industry and the telephone industry as all telephone men know. Light and power plants can make a saving by grouping under one management a number of small plants, since they can shut down the small plants and supply the current from one large central station. Furthermore, the light and power business has yet a great undeveloped field for the sale of current.

As to the telephone business, the individual exchanges must be operated just the same—singly or in groups—as when they are owned locally, and there is no great undeveloped field for telephone service.

It seems clear that those who are coming into the telephone field from the outside and promoting new telephone companies by grouping properties together, etc., do not understand this fundamental difference; and, most of them being light and power people, they are working on the same principles used in the light and power field. Furthermore, they seem to be assuming that they can in the telephone business adopt the same ideas as to depreciation that they are using in the light and power field.

The position of most of the light and power companies is that depreciation is small, and they allow for depreciation in most cases not to exceed 2 per cent a year. Experience for many years in the telephone business has shown that depreciation of around 5 per cent or more a year is absolutely necessary to perpetuate the property.



E. C. Blomeyer, Chairman of Board, Diversified Investments, Inc., Kansas City, Mo., Discussed Some Important Features of Present Day Telephone Finance.

It is easy, therefore, for outside promoters to make a fine showing of net earnings on telephone properties they acquire, if they either ignore depreciation or place it at a rate that the experience of telephone people has proved to be too low—and this seems to be just what is going on in the field.

A Serious Feature.

"One of the serious features of the situtation is that many old-timers are selling out; and that, after having sold out for what they considered a high price, they find it impossible to get back into the telephone business on a profitable basis. There are today, many dissatisfied telephone men looking for properties to buy and wishing they had not sold the ones they owned.

A man operates a telephone exchange, which cost him about $25,000. He figures he does not know anything about the economy of it. He knows he has a telephone company, which cost about $25,000. He has been running it for 15 or 20 years, and has never seen more than $150 at any one time. Along comes a fellow from Chicago, or New York, and puts up a proposition to give him $40,000 for his telephone exchange.

When he realizes that there is as much as $40,000 in the world, his first inclination is to sell—he can hardly refuse to sell it. His condition is similar to a friend of mine who had a home which cost him $12,000.

A real estate man offered him $18,500 for it, and he sold very quickly. He then went out to buy another house—and he had to board about two months. Finally, he paid $21,000 for another house, which he did not like as well as his own.

The telephone man who sells his exchange is in the same position."

A safety talk and demonstration of the prone pressure method of resuscitation, and a most instructive talk on safety in joint construction was given by C. J. Rutland, Dallas, safety engineer, Texas Power & Light Co., assisted by R. M. Moore, safety inspector, Texas Power & Light Co., and Jack Conder.

Much interest was manifested in Mr. Rutland's talk on the subject of resuscitation and especially on the subject of joint construction of telephone and light and power companies.

The Traffic Conference.

The traffic conference was in charge of Sam H. Shutt, Waco, general superintendent, Texas Long Distance Telephone Co., who was also chairman of the program committee for it. The room in which the conference was held was crowded to capacity with operators from various parts of Texas, it being estimated that between 150 and 200 young women were present.

Mr. Shutt conducted the program which consisted of asking questions concerning traffic methods, rules and regulations and requiring the answers to be given by the operators present. Those who succeeded in answering the most questions correctly were given prizes.

The questions and answers covered both local and long distance operating instructions and was in reality a traffic school.

Wednesday evening a dance was given, the music being furnished by the Texas Hotel orchestra. A large number of the visiting telephone people attended.

Thursday morning at the second session of the traffic conference the operators listened to an interesting and instructive talk by Miss Anne Barnes, Des Moines, Iowa. special traffic representative, United States Independent Telephone Association, on the subject "Operating Room Management."

A skit was then presented by Misses Faye Daniel, Libbye Ewing, Clara Trigo and Jessie Staub. The subject was "As It Was—and As It Should Be." It brought out in strong contrast the difference between a poorly-managed operating room, with antiquated equipment and careless employes, and a modern, up-to-date operating room, with modern equipment and courteous operators.

(*Please turn to page* 42.)

Fundamental Principles of Radio

"The A. B. C. of Radio," as Presented in Addresses Before The Executives' Club of Chicago and Convention of Missouri Telephone Association--Radio Vacuum Tubes and Their Action in Receiving Set Circuits—Recent Trends

By Ray H. Manson,

Chief Engineer, Stromberg-Carlson Telephone Mfg. Co.

Radio is a magic word that attracts immediate attention of everyone, whenever it is mentioned. At first, it was the novelty of picking speech and music out of the air. Then, came the craze for reaching out for great distances. Now, it is the endeavor to bring entertainment into the home with the naturalness of the original before the distant microphone.

Radio has been a rapidly-growing business from the time when the first regular schedules of broadcasting commenced about six years ago. This increasing interest is best shown by the sales of radio apparatus, which have grown from two million dollars in the year 1920 to an estimated total of 500 million dollars for last year. The year of 1925 showed a total of over 350 million.

This remarkable growth is best shown by referring to the graph, Fig. 1. The principles underlying a business of such immense proportions deserve a few minutes of study.

Fundamentally, radio broadcasting accomplishes what is done with the modern telephone; that is, it transmits sound waves —speech and music—from one point to a distant point. The telephone employs electrical currents, guided over conducting circuits of copper wire, in the transfer of the sound energy. The metallic telephone circuits confine the transfer of sound to a definite selection of sending and receiving stations, making the connection private and of the two-way type.

In this respect, the radio broadcast system differs, as it comprises a central transmitting station sending out electrical waves

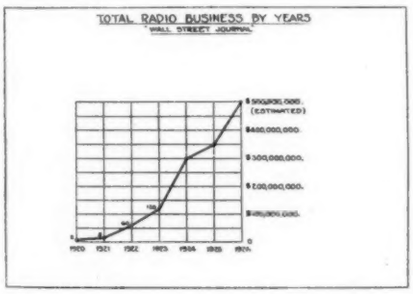
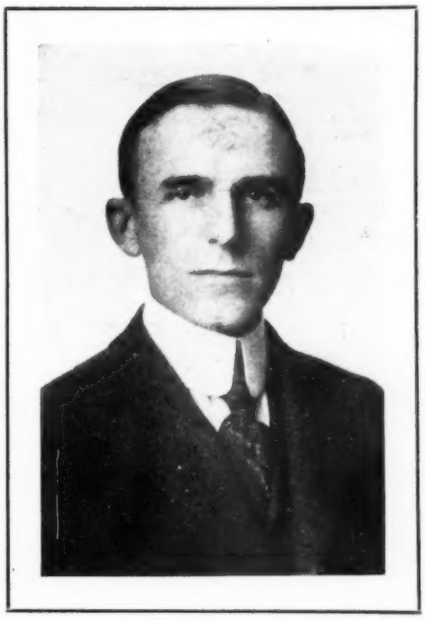


Fig. 1. Sales of Radio Apparatus Since Broadcasting Commenced

in all directions, the same as the spreading waves from the point where a pebble is dropped into a quiet pool of water. The striking of the antenna of a receiving station by these electrical waves, sets up minute electrical currents that are strengthened in the receiver and converted to sound waves of the desired loudness to satisfy the listeners.

Any number of receiving set antennas can collect this one broadcast station signal, the only limitation being that the spreading electrical waves actually reach



"Radio Is Well Stabilized," Says Mr. Manson, "and is Fast Becoming An All-the-Year-Round Business."

and strike the antenna before being absorbed or dissipated.

It is interesting to note the relation of sound waves to the so-called radio waves and to the other waves that produce heat and light. By referring to the table, Fig. 2, it will be seen that the waves vibrating between 20 per second and approximately 30,000 per second (also known as 30 kilocycles, as 1 k.c. equals 1,000 cycles per second) are known as "audio" frequency vibrations, for they affect the sense of hearing; therefore, are audible.

The next higher band of frequencies, from approximately 30 k.c. (10,000 meters) to 3,000 k.c. (100 meters) include the usual radio frequencies used in commercial and experimental radio transmission. This band also includes the frequencies assigned to radio broadcasting for entertainment purposes, the latter band being 550 k.c. (545.1 meters) to 1,500 k.c. (200 meters). These radio waves are too high a frequency to be audible, and not

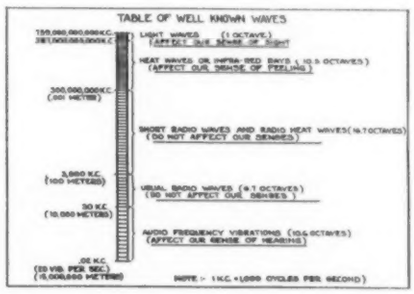


TABLE OF WELL KNOWN WAVES
LIGHT WAVES (1 OCTAVE.)
(AFFECT OUR SENSE OF SIGHT
HEAT WAVES OR INFRA-RED RAYS (1 10.5 OCTAVES)
(AFFECT OUR SENSE OF FEELING)
300,000,000 K.C.
(.001 METER)
SHORT RADIO WAVES AND RADIO HEAT WAVES (10.7 OCTAVES)
(DO NOT AFFECT OUR SENSES)
3,000 K.C.
(100 METERS)
USUAL RADIO WAVES (9.7 OCTAVES)
(DO NOT AFFECT OUR SENSES)
30 K.C.
(10,000 METERS)
AUDIO FREQUENCY VIBRATIONS (10.5 OCTAVES)
(AFFECT OUR SENSE OF HEARING)
.02 K.C.
(20 VIB. PER SEC.)
(15,000,000 METERS)
NOTE:- 1 K.C. = 1,000 CYCLES PER SECOND)

Fig. 2. Comparison of Radio Frequencies to Sound, Heat and Light Frequencies.

high enough in frequency to produce heat and affect the sense of feeling.

Further reference to Fig. 2 shows a band of frequencies above the regular radio waves, between 3,000 k.c. (100 meters) and 300,000,000 k.c. (.001 meter) that are known as "short radio waves" and "radio heat waves." Directly above these waves comes the band of "heat waves" and next follow "light waves."

Relation of Wave Lengths to Meters

Mention has been made of wave lengths as expressed in meters. A wave length is the distance (in meters) that one wave travels before another wave starts; and contrary to some popular conception, has nothing to do with the receiving range of a radio set. In radio, the length of a wave is seldom if ever measured, although it is customary to give the frequency of a broadcast station in "wave lengths."

The velocity of electrical waves is approximately 300,000,000 meters per second, the same as light frequencies. Thus, wave lengths are easily calculated by dividing this factor by the frequency in cycles per second. For example, the wave length of a broadcast signal of 750 k.c. (750,000 cycles per second) is found by dividing 300,000,000 by 750,000, giving 400 meters.

With this introduction, let us see what actually occurs between the microphone at the broadcast station and the loud speaker in the receiving station.

In telephony, we have the circuit wires to guide the low or audible electrical frequencies of the speech and music. When extremely high frequencies are employed, no wires are required, as these radio impulses are projected through space in all directions from the transmitting (broadcast) station antenna. Thus, for wireless transmission, the high inaudible frequencies take the place of the wires used in

telephony for a carrier of the audible frequencies of speech and music.

These low (audible) electrical frequencies are superimposed on the high (inaudible) electrical frequencies at the broadcast station and in this way are projected through space. This is clearly shown in Fig. 3, the "oscillator" or carrier wave generator at this particular broadcast station producing a frequency of 550,000 cycles per second (550 kilocycles).

Other broadcast stations on different wave lengths, employ different electrical frequencies for the carrier currents, the broadcast range including frequencies between 550 kilocycles and 1,500 kilocycles, as previously explained.

The audible electrical frequencies produced by the broadcast station microphone, operate through a "modulator" to superimpose the speech and music vibrations on the carrier current. The unmodulated carrier current is shown as a smooth-topped alternating current wave form.

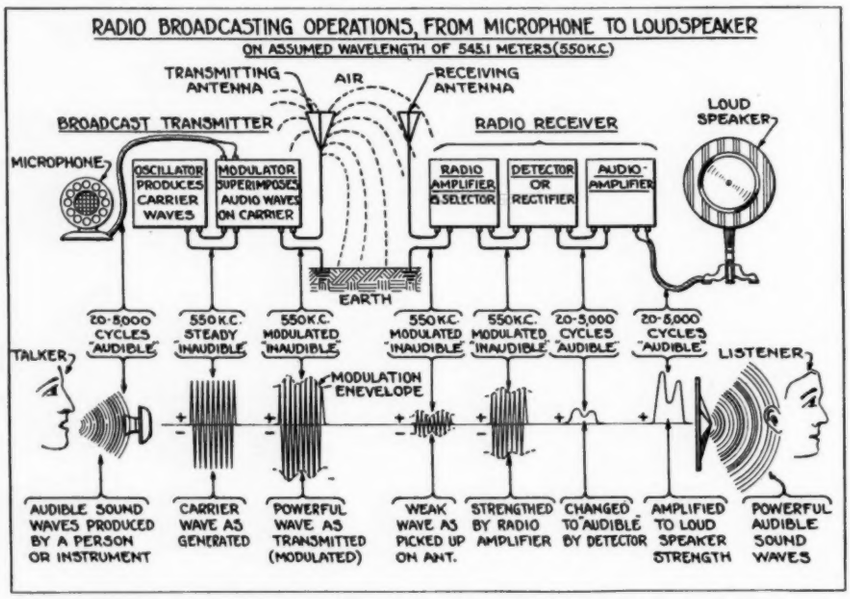


Fig. 3. Fundamental Operations in the Transmitting of Sound by Radio.

The combining of the voice and carrier waves at the modulator, results in subtracting or adding to the height of the carrier wave "tops" so that the envelope, or the contour of a line drawn through these wave tops, conforms exactly to the speech or music waves at the microphone.

It is the modulated carrier wave that is projected from the broadcast station antenna through space and is picked up on the receiving set antenna, although in a greatly attenuated form. The received radio wave still is 550 kilocycles with the same modulated shape to the tops of the waves, only of very small amplitude.

The first requirement of the receiving set is to select one carrier frequency only —that of the desired broadcast station— and reject all other carirer frequencies from broadcast stations on different wave lengths. This is known as "tuning."

Besides tuning-in for the frequency of the desired carrier wave, the radio receiving set must magnify the minute radio current to a "size" suitable for efficiently operating a detector system. The radio current still is inaudible, so that this first amplifying system is called a "radio frequency amplifier."

The detector system of the radio receiver serves to transform the high frequency (inaudible) carrier current and leave the audible component or envelope which corresponds exactly to the envelope produced at the broadcast modulator.

These audio currents are usually of ample strength to operate a sensitive radio head set, but for loudspeaker operation another amplification must take place. In this case, however, we are dealing with low or audible frequencies.

The loudspeaker is nothing more than an enlarged telephone receiver system, capable of handling practically all audible frequencies uniformly and with considerable volume. Thus, the loudspeaker changes the audio currents to sound that is a faithful reproduction of the sound produced before the broadcast station microphone.

Design of the Radio Vacuum Tube

Modern radio is built-up around the device called the vacuum tube, an innocent-looking device that in the smaller sizes resembles an ordinary house size of incandescent lamp bulb. In the broadcast station and receiving set installation, this vacuum tube gives four distinct services.

1. It acts as an oscillator to generate alternating currents.
2. It acts as a rectifier to change alternating currents to direct currents.
3. It acts as an amplifier of alternating or pulsating currents.
4. It acts as a detector.

While the understanding of all of these functons of the vacuum tube are of interest to the layman, the amplifying action enters more strongly into the problems of the radio receiving set. It is the use of a number of these vacuum tubes, connected in series or "cascade" that amplifies or strengthens the radio and audio currents to that required for desired loudness or volume of signal in the loudspeaker.

Mechanically, the vacuum tube consists of a glass bulb into which is sealed three elements, the air being completely withdrawn so as to allow for free electrical action as subsequently described.

These elements usually are arranged as follows:

1. The *filament* is at the middle of the bulb.
2. The *plate* is a thin sheet of metal surrounding the filament.
3. The *grid* is a mesh of fine wires, inserted between the filament and plate.

All three of these elements are electrically insulated from one another and brought out to pin-type terminals at the base of the bulb. These pins serve as contact members to connect the three tube elements to the electrical circuits of the receiver.

The filament of the tube is made of a material that will give off large quantities of "electrons" when it is heated. While this filament glows similar to the filament in a dimly-lighted electric lamp bulb, it is not the light that counts in this case, but rather the liberation of the electrons, which are the smallest imaginable units of matter.

If the supply of electrons in the surface material of the filament are practically exhausted, then the heating or lighting of the filament would fail to cause the vacuum tube to function in the radio receiver. This explains why an old tube that still lights often is unserviceable.

At this point it is necessary to explain that an electric current is nothing more than a regular flow or drift of electrons from one point to another. The force that causes electrons to move in a regular path or direction is called electrical potential, and this force is measured by a unit called "volts." This unit corresponds to the use of the unit "pounds per square inch" when expressing water pressure in a pipe.

The use of water flow in a pipe system can be employed as an analogy to make clear the amplifying or valve action of the radio vacuum tube. Refer to the left-hand view of Fig. 4 which shows a power driven rotary pump at "1," tending to force water at a constant high pressure through a pipe system in the direction of the arrows.

Vacuum Tube Operation — Water Analogy.

In this pipe is located a hand-actuated valve "2" which can be operated with a very "feeble" pressure and control the flow of water. Also, in this pipe system is located a water motor that is rotated when the water is allowed to flow through the pipe. It is easily seen that when the

valve is fully opened, the water motor will deliver considerable power, much greater than that employed to open the valve.

Now, if we refer to the right-hand view of this same illustration (Fig. 4) a radio vacuum tube is shown in an amplifying circuit. The numeral designations in this second view refer to electrical apparatus that performs functions similar to the water apparatus in the first view.

The "B" battery, as a local source of powerful electrical energy, corresponds to the power-driven water pump. The vacuum tube corresponds to the hand-operated water valve and the cone-type loudspeaker corresponds to the water motor. The pressure to cause electronic flow (corresponding to the water flow in the left-hand view) is in the direction of the arrows; that is, from the "B" battery through the vacuum tube, thence through the loudspeaker and back to the "B" battery.

Assuming that "feeble" electrical impulses on the grid of the tube will increase and decrease the powerful electronic flow, similar to the action of the hand-operated valve in the water pipe, these changes will forcibly operate the loudspeaker. In other words, a weak electrical impulse acting on the grid becomes a powerful electrical impulse, or is magnified, or rather "amplified."

If the weak impulses on the grid are in step with the electrical impulses picked up from a broadcasting station, then the amplified impulses delivered to the loudspeaker from the tube will correspond to what takes place before the microphone of that broadcast station.

Trigger Action of Vacuum Tube Described.

A further study of the vacuum tube discloses the reason for the "trigger" action of the grid. While the heating of the filament by the current from a low-voltage battery—known in radio as the "A" battery—liberates electrons, it is the high-voltage "B" battery connected to the plate of the tube that sets up an electrical potential between the plate and filament and causes a steady flow of electronic current in the plate circuit as shown by the arrows.

It will be noticed that the "B" battery is connected with its positive (+) terminal to the plate and its negative (—) terminal to the filament. The electrons being negative (—) electricity are attracted by the positive (+) plate, inasmuch as "unlike charges of electricity attract each other." This accounts for the electronic flow being in the direction of filament to plate, as shown by the arrows.

If the "B" battery, or other source of plate potential, is steady and the filament is maintained at a constant temperature, the flow of plate current will be steady and without fluctuation.

The brighter or hotter the filament, the greater the number of electrons liberated and the greater the plate current. This feature is used as an amplification or volume control in some radio receiving sets, the filament rheostat acting as a means for changing the filament heating and consequently the plate current flow.

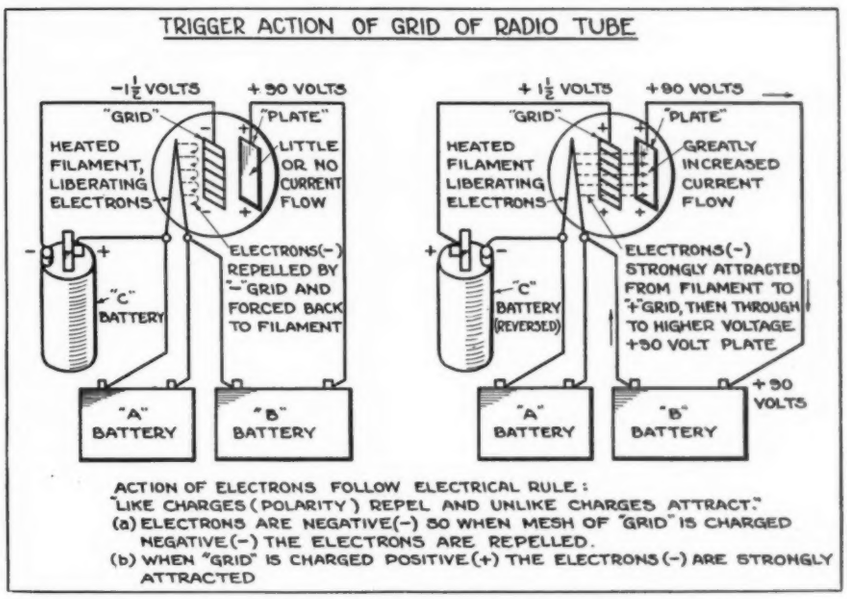

TRIGGER ACTION OF GRID OF RADIO TUBE
−1½ VOLTS
+90 VOLTS
"GRID"
"PLATE"
HEATED FILAMENT, LIBERATING ELECTRONS
LITTLE OR NO CURRENT FLOW
ELECTRONS(−) REPELLED BY "−" GRID AND FORCED BACK TO FILAMENT
"C" BATTERY
"A" BATTERY
"B" BATTERY
+1½ VOLTS
+90 VOLTS
GREATLY INCREASED CURRENT FLOW
ELECTRONS(−) STRONGLY ATTRACTED FROM FILAMENT TO "+" GRID, THEN THROUGH TO HIGHER VOLTAGE +90 VOLT PLATE
"C" BATTERY (REVERSED)
+90 VOLTS
ACTION OF ELECTRONS FOLLOW ELECTRICAL RULE:
"LIKE CHARGES (POLARITY) REPEL AND UNLIKE CHARGES ATTRACT."
(a) ELECTRONS ARE NEGATIVE(−) SO WHEN MESH OF "GRID" IS CHARGED NEGATIVE(−) THE ELECTRONS ARE REPELLED.
(b) WHEN "GRID" IS CHARGED POSITIVE(+) THE ELECTRONS(−) ARE STRONGLY ATTRACTED

Fig. 5. How the Grid Acts as a "Trigger" in a Vacuum Tube.

Now to get back to the "trigger" action of the vacuum tube. This effect is shown in the two views of Fig. 5, the left-hand diagram showing the action when the grid is negatively (—) charged and the right-hand diagram when the grid is positively (+) charged.

If the grid has a negative charge of 1½ volts, as obtained from a dry cell "C" battery, connected between the filament and grid of the tube, the electrons, which otherwise would be passing freely from the filament through the mesh of the uncharged grid to the plate, will be repelled and forced back towards the filament, due to the fact that "like charges of electricity repel one another."

Thus, the electronic flow of current will be diminished or completely stopped, according to the extent of the negative charge on the grid as compared to the positive charge on the plate.

On the other hand, when a grid is positively (+) charged with 1½ volts, as shown in the right-hand view of Fig. 5, the electrons from the filament will be strongly attracted by this change and, upon reaching the grid, they begin to feel the greater attraction of the higher positive voltage (+90 volts) on the plate, and eagerly pass through the openings of the grid in a mad rush to reach the plate.

It is this property of the grid of the vacuum tube to control the electrical current flow in the plate circuit that likens it to the trigger action in the firing of a gun.

One of the reasons for the great superiority of the vacuum tube over mechanical amplifying devices is the complete absence of inertia effect, the electrons being of such minute size as compared to any man-constructed mechanism.

The mass is so small that there is no

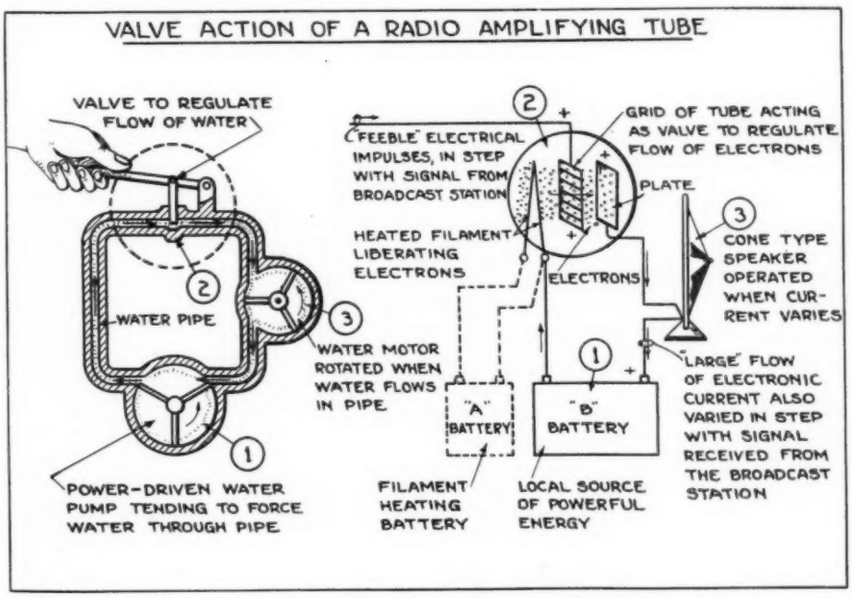

VALVE ACTION OF A RADIO AMPLIFYING TUBE
VALVE TO REGULATE FLOW OF WATER
WATER PIPE
WATER MOTOR ROTATED WHEN WATER FLOWS IN PIPE
POWER-DRIVEN WATER PUMP TENDING TO FORCE WATER THROUGH PIPE
"FEEBLE" ELECTRICAL IMPULSES, IN STEP WITH SIGNAL FROM BROADCAST STATION
GRID OF TUBE ACTING AS VALVE TO REGULATE FLOW OF ELECTRONS
PLATE
HEATED FILAMENT LIBERATING ELECTRONS
ELECTRONS
CONE TYPE SPEAKER OPERATED WHEN CURRENT VARIES
"LARGE" FLOW OF ELECTRONIC CURRENT ALSO VARIED IN STEP WITH SIGNAL RECEIVED FROM THE BROADCAST STATION
"A" BATTERY
"B" BATTERY
FILAMENT HEATING BATTERY
LOCAL SOURCE OF POWERFUL ENERGY

Fig. 4. Water Analogy for Radio Amplifying Tube.

tendency in the vacuum tube to continue to travel in any one direction after the impelling force is stopped; also, there is no "lag" in getting started when driving force is applied.

The present perfection of the modern radio receiving set has been made possible by the improved types of vacuum tubes now available. There are two main types of circuits now employed in adapting these tubes to the receiving set—the "Tuned Radio Frequency" (abbreviated T. R. F.) and the "Super-Heterodyne."

The T. R. F. receivers can be divided into two main groups, according to the method employed in controlling or preventing the undesirable effects of feed-back from the plate to the grid of the amplifying tubes:

(a) T. R. F. receivers employing losses or similar methods to keep the effect of the feed-back below the oscillation point.

(b) T. R. F. receivers employing means for completely balancing-out the tendency to feed back, such as that employed in the "Neutrodyne" type of receiver.

The arrangements and duties of the vacuum tubes in the T. R. F. and Superheterodyne types of receivers are clearly shown in diagrams, Fig. 6.

The upper diagram illustrates a T. R. F. receiver using three stages of tuned radio frequency amplification, in which each stage can be tuned directly to the high-frequency carrier current of the desired broadcast station, to provide selectivity and amplification before the signal reaches the detector tube. The detector and audio amplifier can be the same for both systems; therefore, need not be considered here.

The minimum number of stages of radio frequency amplification used in T. R. F. receivers usually is two; and with one detector and two audio stages, the receiver will contain five tubes. Additional radio amplifying tubes can be added by adopting total shielding as subsequently desired.

The lower diagram of Fig. 6 illustrates a typical eight-tube super-heterodyne receiver. In this design, the several radio amplifying stages are tuned at the factory to operate on a narrow band of comparatively low frequencies, say around 50,000 cycles per second. Inasmuch as the broadcast station frequencies are between 550,000 cycles and 1,500,000 cycles, it is necessary to use a "frequency changer" to convert the broadcast frequencies to the lower frequency to which the radio amplifier of the superheterodyne receiver is tuned.

This is accomplished by adjusting the frequency of the oscillator of the receiver, so that, when its frequency is combined with the carrier frequency of the desired broadcast station, the difference or "heterodyne" frequency will exactly match the frequency to which the radio amplifier is tuned.

If the radio amplifier of the superheterodyne has a fixed adjustment for 50,000 cycles, then the oscillator must be set at 50,000 cycles above or below the frequency of the desired broadcast station signal, as shown at the bottom of Fig. 6.

Relation of Pick-up to Number of Tubes.

The size and type of antenna used as a collector of the broadcast signal energy determines the number of amplifying tubes employed in a radio receiver. Fig. 7 shows four examples, based on the picking up of a "weak" signal and the amplifying to the same volume of loud speaker in each case.

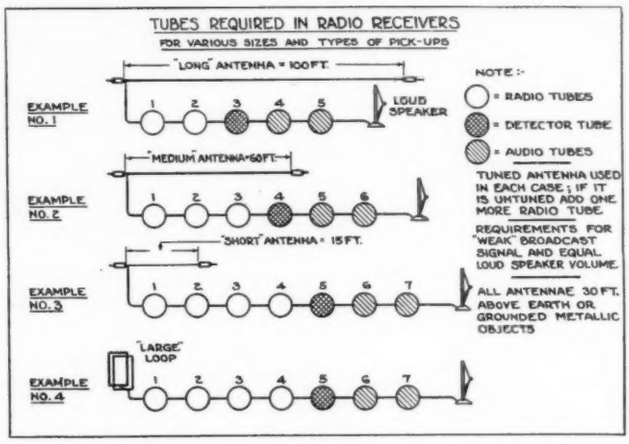

TUBES REQUIRED IN RADIO RECEIVERS
FOR VARIOUS SIZES AND TYPES OF PICK-UPS
"LONG" ANTENNA = 100 FT.
EXAMPLE NO. 1
LOUD SPEAKER
"MEDIUM" ANTENNA = 60 FT.
EXAMPLE NO. 2
"SHORT" ANTENNA = 15 FT.
EXAMPLE NO. 3
"LARGE" LOOP
EXAMPLE NO. 4
NOTE:-
= RADIO TUBES
= DETECTOR TUBE
= AUDIO TUBES
TUNED ANTENNA USED IN EACH CASE; IF IT IS UNTUNED ADD ONE MORE RADIO TUBE.
REQUIREMENTS FOR "WEAK" BROADCAST SIGNAL AND EQUAL LOUD SPEAKER VOLUME.
ALL ANTENNAE 30 FT. ABOVE EARTH OR GROUNDED METALLIC OBJECTS

Fig. 7. The Smaller the Size of Pick-up, the Greater the Number of Tubes Required for Equal Signals.

The five-tube receiver with two R. F. stages, requires a single wire antenna of 100 ft. long, including the lead-in wire. The six-tube receiver, with three R. F. stages requires a similar antenna of approximately 60 feet, while the seven-tube receiver with four R. F. stages requires an antenna of approximately 15 feet. A large loop can be substituted for this 15-foot antenna, with about the same results.

(To be concluded.)

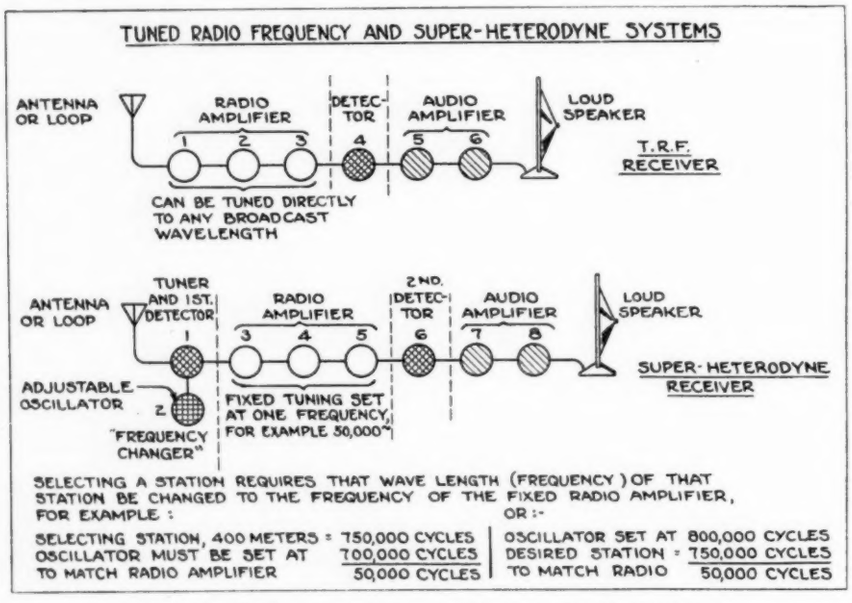

TUNED RADIO FREQUENCY AND SUPER-HETERODYNE SYSTEMS
ANTENNA OR LOOP
RADIO AMPLIFIER
DETECTOR
AUDIO AMPLIFIER
LOUD SPEAKER
T.R.F. RECEIVER
CAN BE TUNED DIRECTLY TO ANY BROADCAST WAVELENGTH
TUNER AND 1ST. DETECTOR
2ND. DETECTOR
ADJUSTABLE OSCILLATOR
FIXED TUNING SET AT ONE FREQUENCY, FOR EXAMPLE 50,000
"FREQUENCY CHANGER"
SUPER-HETERODYNE RECEIVER
SELECTING A STATION REQUIRES THAT WAVE LENGTH (FREQUENCY) OF THAT STATION BE CHANGED TO THE FREQUENCY OF THE FIXED RADIO AMPLIFIER, FOR EXAMPLE:
SELECTING STATION, 400 METERS = 750,000 CYCLES
OSCILLATOR MUST BE SET AT 700,000 CYCLES
TO MATCH RADIO AMPLIFIER 50,000 CYCLES
OR:-
OSCILLATOR SET AT 800,000 CYCLES
DESIRED STATION = 750,000 CYCLES
TO MATCH RADIO 50,000 CYCLES

Fig. 6. Functions of Vacuum Tubes in Radio Receivers.

Special "Advance Information" on Iowa's 32nd Annual Convention.

The 32nd annual convention of the Iowa Independent Telephone Association will be held at the Hotel Ft. Des Moines, Des Moines, Tuesday, Wednesday and Thursday, April 19, 20 and 21.

Almost all of the available exhibit space has been reserved and it is certain that all of it will be before the convention time arrives.

The program, of unusual interest, is being prepared. A special effort is being made to make this meeting of large interest to the small and average-sized company.

The unusual activity in the telephone field during the past year is certain to make every telephone man want to attend this convention and discuss with his neighbors and friends the effects on the industry of these sales and purchases.

It is expected that there will be a greater number of visitors from out of the state than in previous years. And TELEPHONY's editor has expressed his intentions of being present. "Perhaps," says Secretary Deering, "that announcement will help us in exciting interest in the meeting."

Of course, there will be a "better-than-ever" traffic conference, plans for which are being formulated by Miss Anne Barnes.

The annual banquet, entertainment de luxe and dance will be held on the evening of April 20. The Iowa association has established an enviable reputation for its social affairs, and this year's event will be better than any of its predecessors.

Here and There in Telephone Work

Battery Supply for Operator's Transmitter—Storage or Dry?

I have just read the article "Battery Supply for Operator's Transmitter—Storage or Dry?" in TELEPHONY of February 26, and, as I have tried a good many different ways and think I have solved the problem, I would like to have the inquirer try it.

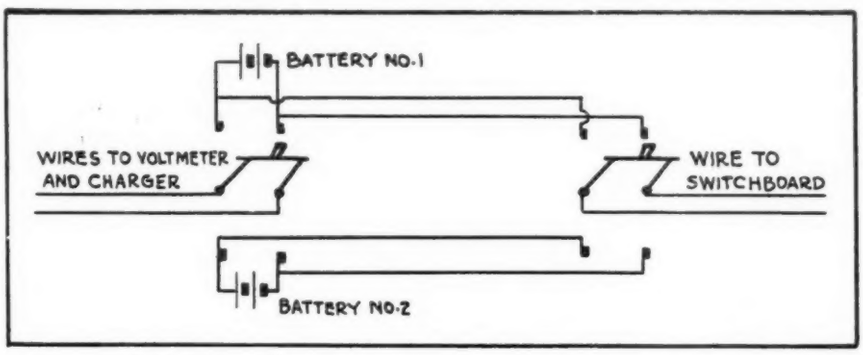
I have tried storage battery, having made one especially for the purpose. It was fairly satisfactory, but I finally discarded it in favor of the dry cell which I am now using. They last from four to six weeks. I only use two cells at a time and place a 40-watt nitrogen lamp in both leads. I think this is cheaper than the current it takes to charge the storage battery.

I have also used the exhausted dry cells, by punching holes in the zinc container and setting them in a quart jar with a solution of salamoniac in it. This makes as good a battery as the original one.

O. W. STUBBLEFIELD, Manager.
Ipava, Ill. Ipava Telephone Co.

* * *

In your issue of February 26, some one asks about the battery supply of their switchboard. We have used two sets of two cells of P. T. chloride accumulator storage battery and a home charger with much better success than dry batteries.



Wiring Circuit for Switchboard Storage Battery and Charger.

A wiring diagram showing connection of the cells through double pole, double throw switches is enclosed.

E. H. MORGAN, Wire Chief.
The Milford Center Telephone Co.
Milford Center, Ohio.

"Open House" at Herington, Kans., Draws Large Crowd.

The United Telephone Co. was host to its subscribers at Herington, Kans., at an open-house celebration which was held on February 12. In spite of the weather being misty and disagreeable, more than 400 persons took advantage of the opportunity of visiting the exchange to see the various mechanisms connected with telephone operation and to hear them explained.

The guests were met at the door by J. L. Emmel, manager of the Herington exchange, who together with his own force and some men from the general office made everyone feel at home. Refreshments consisting of punch and wafers were served.

A unique method was used in showing the visitors through the building. A large red ribbon had been stretched from the entrance around through the points of interest in the exchange, and everyone was asked to follow this trail. Employes of the company were scattered along the route to explain the use of the various pieces of equipment. A group of 24 signs were also placed about the building to help acquaint telephone patrons with the mechanisms which daily are taking care of their needs.

The guests were especially interested in watching the operators at work plugging up the calls on the switchboard, and many comments were heard on the speed and alacrity of the girls.

This is one of a series of open-house celebrations which are being held at the exchanges of the United Telephone Co. Officials of the company believe that they are a splendid means of increasing the good will of the public.

Sound and Action Merged on One Movie Film.

Talking motion pictures, in which the tones of the performers were synchronized perfectly with the action on the silver screen and which were produced by a new process, were demonstrated January 29 by officials of the General Electric Co. in a theater in Schenectady, N. Y.

The demonstration was in two forms. In one, the sound-recording apparatus was merged with the motion-picture camera, and both the audible and the visible were imprinted simultaneously on the film. In the other, the incidental music for one of the latest "first run" films was recorded on an undeveloped print of the feature picture.

The new process, called by its inventors the photophone, is a combination of the motion-picture projector and the pallophotophone, a device invented by Dr. C. A. Hoxie of the General Electric Co.'s research staff.

The pallophotophone makes a photographic print, by means of a vibrating beam of light, on the strip of film. When run through the reproducing machine, the vibrating beam of light retranslates the photographic sound record into audibility. The sound record in the projecting machine is amplified by a loudspeaker to any degree desired.

By means of synchronized motors, the incidental music accompanying the "first run" picture was placed upon the picture film in exactly the proper relation. This was shown by two incidents of the action of the picture.

In one place the sound of a blow was timed exactly with the motion on the screen; later the crack of a pistol was simultaneous with the burst of smoke from the muzzle of the weapon.

The inventors whose combined efforts produced the new talking movie believe that in imposing the music after a film has been made, they have aided the small town exhibitor. While the music in thousands of picture theaters now is limited to one piano, it will be possible hereafter to show anywhere a picture with symphony accompaniment.

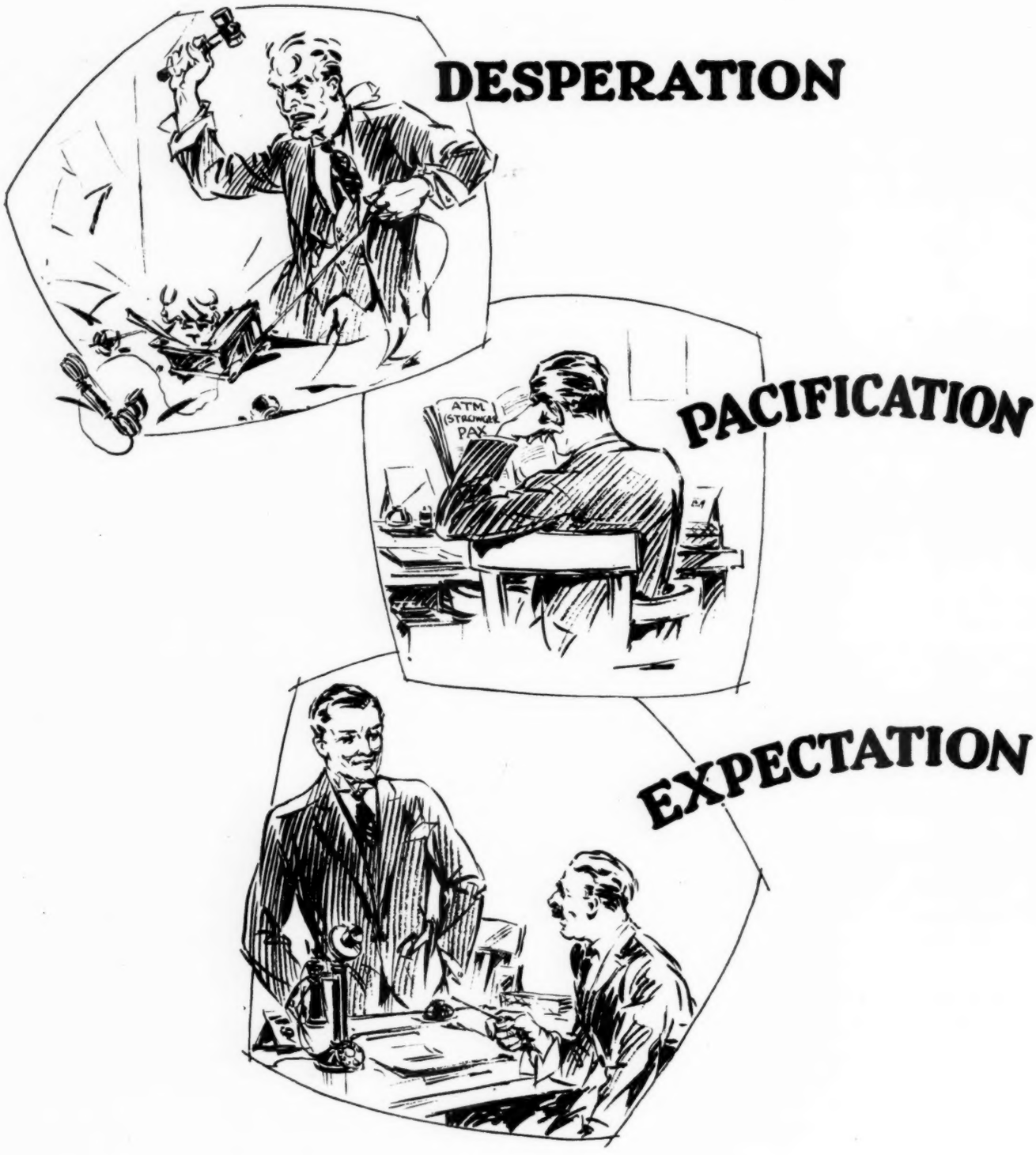
Will Use Larger Type and Issue New Directory.

The Lincoln Telephone & Telegraph Co. announces that it will issue a new Lincoln directory, its officials being dissatisfied with their experiment in condensing it and printing the names, numbers and addresses in six-point type of the style that the Bell uses for most of its large city directories. The new issue appeared in December, and ordinarily but one a year is printed.

Some dissatisfaction had been expressed by patrons, and the other day W. C. Parriott, a middle-aged attorney, who would not let the state railway commission adjust his complaint, demanded a hearing on a formal complaint he filed, the prayer of which was that the company be ordered to print a "readable" directory.

Before Mr. Parriott had filed his complaint, General Manager Agee had taken up the matter and ordered that a new issue be put out at the earliest possible time, which will be April 1. The new book will be in seven-point type, printed either on white news or upon book paper. The arrangement of three columns to the page will be continued. Mr. Agee thinks that

(*Please turn to page 29.*)



Upwards of 3,500,000 Strowger Automatic Telephones installed or under construction throughout the world

When writing to Automatic Telephone Mfg. Co., Ltd., please mention TELEPHONY.

ONE of the most popular and well-remembered advertisements of a world-famous chocolate manufacturer based its pictorial appeal on the familiar influence of that sweetmeat upon the juvenile mind, and profited accordingly.

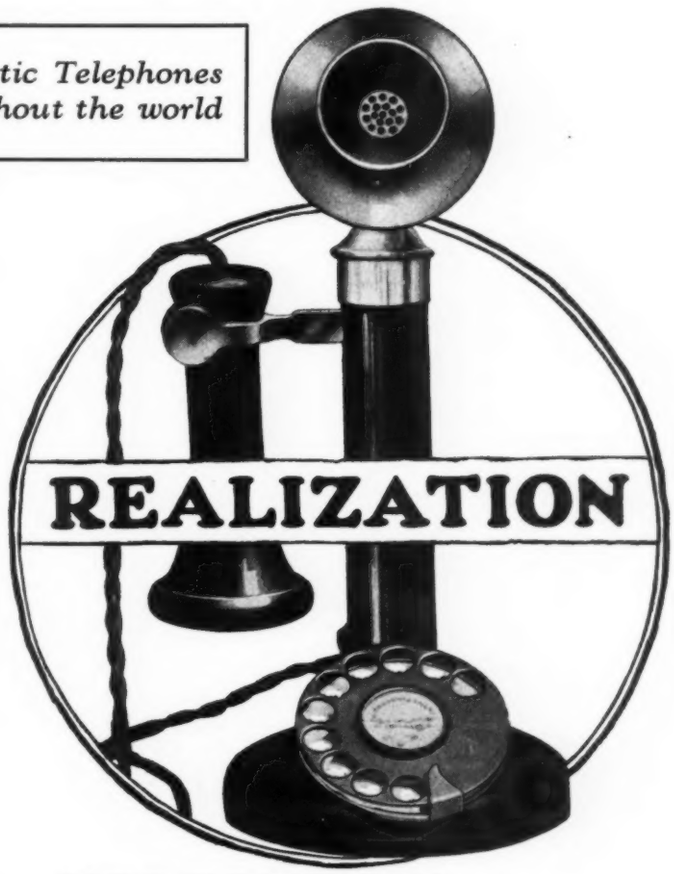
From "Desolation" to "Realisation"; from despair to happiness; in five progressive stages, was admirably portrayed by the artist.

The simile is particularly opportune; from the "Desolation" of obsolete telephone systems to a "Realisation" of the possibilities of an A. T. M. (Strowger) P. A. X. aptly explains the decision to adopt such a modern and advantageous system of communication.

This decision was, in fact, reached and promptly acted upon by Messrs. J. S. Fry & Sons, Ltd., the selfsame chocolate manufacturers, in whose works at Bristol, England, an extensive A. T. M. (Strowger) P. A. X. was installed in 1922.

So successful has this installation proved that a further A. T. M. (Strowger) P. A. X. is in process of manufacture for their works at Somerdale, England.

Upwards of 3,500,000 Strowger Automatic Telephones installed or under construction throughout the world



AUTOMATIC TELEPHONE MANUFACTURING COMPANY LTD.

STROWGER WORKS
MILTON ROAD
EDGE LANE
LIVERPOOL

LONDON OFFICE
NORFOLK HOUSE
NORFOLK STREET
STRAND, W.C.2

ENGLAND

ASSOCIATED COMPANY - - THE INTERNATIONAL AUTOMATIC TELEPHONE CO., LTD. - - LONDON

A·T·M (STROWGER)

in business—in indust

The Monophone is manufactured in the types shown here, both with and without dials, and can be furnished for any type of common battery service. The manual desk stand has a center type stem while the automatic style is designed with offset stem. Dial blanks may be substituted for dials where automatic operation is to be adopted in the near future.

Mon

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the modest ap
Monophone spells
pleasing combinati

No telephone has
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Regardless of whe
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Automa

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Monophone Wall Set
Type 3

Monophone Extension Set
Type 4

Monophone Desk Set
Type 5

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matctric Inc.

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Chi A.

Monophone Desk Set
Type 1

Monophone Desk Set
Type 1

Monophone Wall Set
Type 3

Strowger Automatic Equipment as Applied to Private Exchanges

by ROY F. GOULD
Development Engineer, Automatic Electric Inc.

Private exchange systems employing Strowger Automatic equipment were first introduced in the year 1901. During the elapsed 25 years more than 2,000 similar switchboards have been installed in the United States alone. The general use and increasing demand for these systems is sufficient proof of their practicability and dependability. Records also prove the economical value of such systems.

Primarily these systems were designed to render the same class of local service as the manual P.B.X. (Private Branch Exchange), that is, inter-communication between stations connected to the switchboard, but with greater rapidity and accuracy than is possible with the P.B.X., connection and disconnection being accomplished without the aid of an operator.

Besides providing rapid and accurate telephone intercommunication, the developments from year to year have also improved the design of these switchboards and have permitted the combining and the co-ordinating of various other services relating to inter-communication, such as "Code Call, "Conference," "Annunciator," "Emergency and Fire Alarm," "Watchman's Recording and Supervising" and many other miscellaneous services designed to meet individual requirements of any organization.

Due to these varied requirements of service operations, special circuits and switchboard equipment is often necessary. Fundamentally, however, the type of equipment and the high efficiency of operation are comparable to the Strowger Automatic telephone systems used for public service.

Fundamentally private switchboards of the Strowger type may be divided into two classes; namely, those arranged for inter-connection with the public exchange and those which are isolated.

They are further divided into a number of types with respect to station capacity, as follows:

Type 1: A full automatic system, which operates from a 30-volt battery. It is arranged for common talking and selective ringing, has an ultimate capacity of 90 telephones, and permits but one connection at a time. The power equipment is mounted on the same unit as the Strowger equipment. May be equipped with code call apparatus having facilities for 10 codes; may also be equipped for secret service between two stations. This system is suitable for schools, warehouses, and small business offices where traffic is not heavy.

Type 2: A full automatic system operating from a 48-volt battery and having an ultimate capacity of 25 lines. It is arranged to accommodate 3 simultaneous communications. It is also arranged for secret service and selective ringing. The storage battery and charging equipment is mounted separately from the switchboard. Cannot be equipped with special services.

This system is suitable for small factories, places of business and hospitals.

Type 5: A full automatic, secret service, selective ringing system which is arranged to operate from a 48-volt battery. This system is equipped with individual line switches and connectors and has a maximum of 100 lines per unit. It is regularly arranged for 10 connectors, but may be arranged for an ultimate of 20 connectors, thus permitting 20 simultaneous connections. The Type 5 system may be equipped for "Code Call, "Watchman's Supervisory and Recording," "Conference," "Executive Right-of-Way," "Emergency or Fire Alarm" and "Annunciator" services.

If desired this system may also be arranged for inter-connection with the public exchange or for trunk service to other private switchboards. In this system the power equipment is mounted outside the switchboard. It is adapted for use in factories, banks, hotels, department stores, and similar business places.

Type 7: This system is of the full automatic, secret service, and selective ring and is arranged to operate from a 48-volt battery. It is equipped with individual line switches, selectors and connectors. It has a maximum capacity of 100 line switches, 10 connectors and 10 selectors per 100 lines. (Where traffic exceeds 10 simultaneous conversations a maximum of 20 connectors and 20 selectors may be provided.)

The connectors are mounted on the reverse side of the line switch upright; the selectors are mounted on a separate selector bay; and the power equipment is mounted separately.

This system has a normal ultimate capacity of 1,000 lines and is intended to be used as additions to the Type 5 or for initial installations where the ultimate capacity will exceed 100 lines.

The Type 7 system may be equipped for the following services: Code Call, Watchman's Supervisory and Recording, Conference, Executive Right-of-Way, Emergency or Fire Alarms and Annunciator services.

This system is suitable for factories, railroad yards, shops, terminals, mail order houses or any large industrial plants. As in the case of the Type 5 system this type may also be arranged for inter-connection with the city exchange.

Type 8: This type is also a full automatic, secret service, selective ringing system and is similar in design to the Type 5 system excepting it is equipped with rotary type line switches and is initially arranged for a maximum of 16 simultaneous conversations per 100 lines. (When the traffic exceeds this, a maximum of 32 simultaneous conversations may be provided.) In this type the power plant capacity is also enlarged to care for this increased traffic capacity. All of the special services listed under the Type 7 system may also be furnished with the Type 8 system. This system is suitable for large manufacturing plants, hotels, wholesale and retail firms, etc.

Type 9: This system is similar to the Type 7 system excepting rotary type line switches are provided instead of the plunger type furnished on the Types 5 and 7.

As is the case with the Type 8 system it is arranged for a maximum of 16 simultaneous conversations, but where traffic is apt to exceed this number of conversations a maximum of 32 conversations may be provided.

This system has a normal ultimate capacity of 1,000 lines and is intended to be used as additions to the Type 8 or for initial installations where the ultimate capacity will exceed 100 lines. In this type the plant capacity is also enlarged to care for the increased traffic capacity.

These several types of Strowger Automatic private switchboards are commercially known at P-A-X's (Private Automatic Exchanges).

A number of P-A-X systems may be and are often inter-connected; such as systems serving railroad yards and terminals, public utilities, etc.

The power equipment, including the storage battery, charging and ringing equipment, etc., is under full automatic control as these systems are designed for unattended operation. This excepts the operator or operators who are ordinarily required to handle incoming trunk calls when the P-A-X is arranged for inter-connection with the city exchange.

A description of the various methods of inter-connection with city exchanges and the special services which may be provided with the P-A-X will be discussed in future articles.

This is No. 12 of a series of articles prepared by members of the Engineering Staff of Automatic Electric Inc., covering technical features of the Strowger Automatic Telephone System.

(*Continued from page 23.*)
the patrons will come to like this as they get used to it, since it involves less turning over of leaves and spreads more numbers and names before the eye at a time.

Doings of the "Noon-Hour" Club.

By J. A. Bracken.

"Attention, fellows," said the chairman as he rapped for silence, "I have the pleasure of introducing Mr. S——— from the general office, who is going to give a talk about saving for a rainy day. Mr. S———, our pay roll department superintendent."

"Mr. Chairman and members of this worthy club. It is indeed a pleasure to have the honor of attending one of your meetings. What I intend to talk about today is 'Thrift'—its advantages and results; the formation of a successful savings plan which leads to financial independence when you are no longer able to work.

I wonder if you have ever thought of that, for when we look about us and see evidence of want, it brings out a very plain and elementary truth—that the future happiness of every one of us, and to a considerable extent of those depending upon us, requires our knowing something of the rules and practices of a systematic savings plan.

Now, I do not intend to indulge in an attempt to tell you when to save or what to save; that concerns only your individual affairs. The average man does not have a very large sum to invest at one time; therefore, it is advisable to accumulate a savings fund. When the savings reach a certain amount, invest it in some reliable securities.

Unfortunately, many people attempting to establish a savings plan do so in a haphazard manner; perhaps creating a bank savings account and later allowing it to lapse, or at another time purchasing, say, a few shares of reliable stock paying regular dividends.

The dividends which they received on their stock, they often do not reinvest. Dividend money, with some of us, is just a little extra money; consequently, it goes for other and ofttimes unnecessary things. Some again consider the amount of the dividends insufficient for reinvestment, and so let go rather carelessly of these odd dollars. Thus you see their whole savings plan is guesswork, following little or no program.

Many persons consider the keeping of personal accounts a useless waste of time and energy. It isn't, for it is almost impossible to practice any systematic savings plan of spending money, or of saving it, if one does not keep an accurate account of all money paid out or received. Therefore, the best means yet found of apportioning the income is by means of a budget, and that is an important step in preparing a thrift plan of your own.

A budget is a theoretical division of your income with the purpose in view of getting the most out of it. It is a plan to check unnecessary expenditure in any direction.

Budgeting the money earned each week gives an incentive to bring the actual expenditures within the proportions decided upon; also you are certain to have a definite sum at a definite time to apply on your systematic savings account.

It is well to prepare your budget not merely from year to year but rather plan it to cover, say, your entire life and even beyond. This is to protect your family or other dependents.

Many people have the mistaken idea about the meaning of 'thrift.' They seem to believe that it means being a miser and hoarding up every penny unconditionally. Yet that is not the case. Thrift is good management, not miserliness.

The fine thing about it, boys, is that with a carefully-worked-out-thrift plan, we are reasonably certain that it is possible to have almost any desired estate built up by our regular investment and reinvestments.

In conclusion, start now building an income on the basis of thrift and confidence in your ability to succeed; and you will soon appreciate just what this really means to you."

New Service Order Record Practice Adopted by Northwestern Bell.

The Northwestern Bell Telephone Co. has just put into effect a new service order practice that is expected to greatly simplify the work of getting a telephone installed and to largely decrease the overhead cost, which is considerable where accurate records are kept.

The plan was worked out by the American Telephone & Telegraph Co.'s engineers, and for weeks the Northwestern has been drilling employes in the use of the new method; first the higher-ups and then those who come into closer contact with the public. This work has been prodigious, but it was held to be necessary in order that full efficiency can be secured from the beginning.

Telephone managers know the infinite detail connected with record keeping of orders, and the new method promises a saving of 10 per cent of time by the use of a form that permits various entries to be combined on one order, and reduces by 30 per cent the number of entries necessary on the average order.

What this means to the Northwestern Bell company can be figured by knowing that last year it handled 517,228 service orders. Not only is the time of the company men saved, but also that of the customer. In the larger exchanges, it will give the business office representatives a definite and accessible record of areas where telephone service facilities are available for all classes and where they are limited.

Northern New York Companies Seek Greater Efficiency.

A conference was held recently in Gouverneur, N. Y., between the representatives of the Northern New York Telephone Corp., and the various connecting companies in that vicinity.

The main object of the meeting was to discuss methods which will tend to increase the efficiency of the smaller companies. Two of the principal topics under discussion were that of inaugurating an all night service with the connecting companies, and of adopting a standardized method of collections.

The meeting was in charge of H. H. McConville, commercial superintendent of the Northern New York Telephone Corp.

Illinois Independent Company Has Cooperative Group Insurance.

Through the purchase of a cooperative group insurance contract, the Pike County Telephone Co., of Pittsfield, Ill., has provided its employes with life insurance totaling more than $40,000, as well as liberal benefits under the terms of a health and non-occupational accident policy. Underwritten by the Metropolitan Life Insurance Co., the plan provides for the payment of premiums jointly by the employer and employes.

In the principal classification, each insured woman receives $500 and each man $1,000 of life insurance. Health and accident benefits are based on an employe's salary. Beginning on the eighth day of disability, due either to sickness from any cause or injury received while off the job, the benefits are payable for a maximum of 13 consecutive weeks.

Included in the life insurance contract is a total and permanent disability clause which provides for the payment of life insurance, in monthly installments, to any employe who becomes totally and permanently disabled before age 60.

Thoughts Relative to Furnishing Subscribers With Hand Sets.

In TELEPHONY of March 12, page 20, I have carefully observed the article "Bell Companies to Furnish Subscribers with Hand Sets."

Our company is insignificant, considered with the larger telephone companies. However, for some time past we have given sincere consideration to adopting the hand set telephone instruments of the cradle type.

After very much testing and obtaining facts from those who should know, our conclusion is that these hand sets do not

compare with the present wall telephones, or desk sets, in transmission.

It is noted in the article that J. S. McCulloh, president of the New York Telephone Co., states that hand sets are not telephonically any better than the present sets now in common use. However, regardless of this fact, the hand sets are to be adopted.

From a point of economy alone, the change in the standardization of instruments to hand sets indicates a loss. The hand sets are more clumsy, weigh more, and cannot be made to transmit as efficiently as the desk or wall sets. From an economic standpoint, this latter condition will also present a loss—in complaints that will have to be taken care of, due to poorer transmission.

There is only one advantage in making the change to hand sets; and that is a slightly increased revenue for this class of telephone.

The excuse for the change in instruments is given as due to a public demand for hand sets, which only means that the public is attempting to dictate to telephone companies their choice of the style telephone they desire, for which they will be obliged to pay a higher rental and receive less in results.

Another thought is this: If the larger companies of the Bell system adopt the hand sets, we small Independents will be obliged to follow the same procedure or be criticized for not doing so. Repeating again the term "economic condition," the instrument change cannot be completed without a loss to the telephone company making the change.

In voicing myself in this matter, it is in an attempt of constructive criticism only, with the concluding thought toward efficient equipment.

E. J. PHILLIPS,
Secretary-Manager.
The United Farmers' Telephone & Telegraph Co., Gardnerville, Nev.

Automatic Telephone Fundamentals

This Is One of Series of Articles Explaining in Simple Terms the Mechanical and Electrical Basis of the Strowger Automatic Telephone System, Which Are Appearing Each Week in TELEPHONY — Part 13, The Rotary Line Switch

By Arthur Bessey Smith, Ph. D.

The rotary line switch is used in a manner illustrated by the 100-line exchange of Fig. 49. Four telephones are shown, each connected by its subscriber line to its rotary line switch. Only three connectors are shown, but as many as necessary may be used.

The banks of rotary line switches may have from 10 to 25 sets of contacts, the latter being most used for large exchanges. The wipers stay where used last. The normal lines run from the connector banks to the cut-off relay, *R*, of each subscriber line. In a large office the line switch banks are run directly to first selectors. Since 25 sets of contacts are available, the selector groups are large, and greater efficiency is secured.

The circuit is shown in Fig. 50. Normally the subscriber loop is connected to ground (+ *L*) and the line relay (to negative battery). The three wipers stand clear of attachments, but resting on a trunk which may be idle or busy. The normal wires (— *N*, + *N*) are permanently connected to the line wires. The private normal, *PN*, is connected through the cut-off relay, *COR*, and the motor magnet, *MM*, to negative battery.

When a subscriber receives a call, a connector switch seizes the line by placing ground on the private normal, *PN*. This operates *COR* but not *MM*, because the resistance of *COR* is too high. The mechanical interlock between line relay and cut-off relay permits the *COR* armature to move only part way, clearing all of its back contacts, but not closing any front contacts. The connector then rings and the conversation proceeds over a clear pair of wires.

When a subscriber initiates a call, the removal of the receiver from the hook closes the line, operating the line relay, *LR*. This grounds *PN* to protect the line from receiving a call, also connects the motor magnet to the private wiper, *PW*. If the trunk is idle, *COR* will operate completely, because the operation of *LR* has removed the interlock lever. The line relay, being slow releasing, holds ground on *PN* until the next switch ahead can put on a ground.

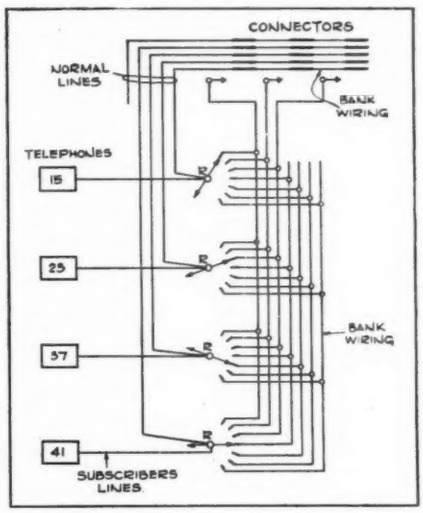


Fig. 49. Trunking Diagram for a 100-Line Exchange, Using Rotary Line Switches.

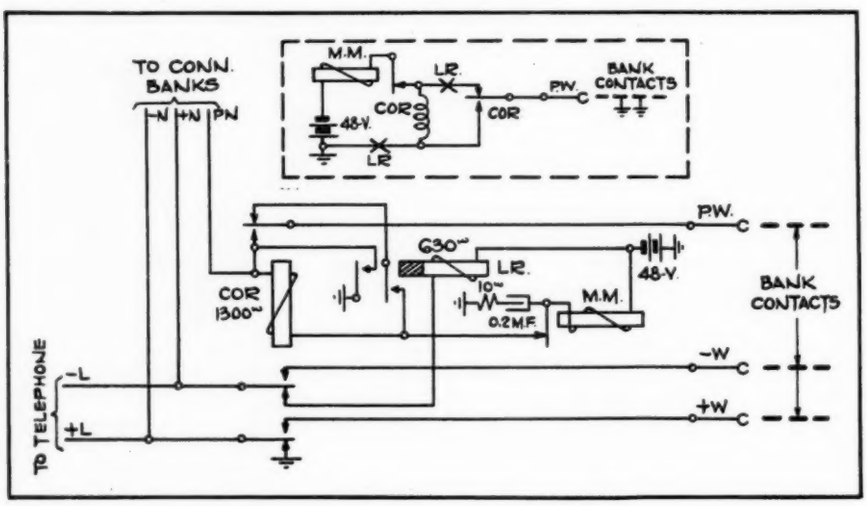


Fig. 50. Circuits of Rotary Line Switch.

If the trunk on which the wipers are resting is busy, the *PW* is grounded. This short circuits *COR* (see small diagram, Fig. 50) and permits *MM* to operate to drive the wipers to the next trunk. *MM* interrupts itself like a door bell.

Rotation continues at 60 to 70 trunks per second until *PW* strikes an ungrounded contact. Then *COR* pulls up all the way, switching the lines through to the next switch ahead. The 0.2 mf condenser and 10-ohm resistance quench the spark at the motor magnet contacts.

(To be continued)

Oklahoma Utilities Convention Sets New Attendance Record.

All former attendance records were broken at the ninth annual convention of the Oklahoma Utilities Association at Oklahoma City, March 8, 9 and 10. Registration reached 825 as against 793 at Tulsa a year ago. Association officials also believe it to have been the best convention from the standpoint of quality of program and general and sustained interest.

The general program held each forenoon was made up almost entirely of speakers of national reputation who have addressed many national conventions. More time was devoted to division meetings than ever before, which gave many Oklahoma utility executives and employes an opportunity to speak and also to discuss various problems connected with telephone, electric, gas, manufacturers and suppliers and electric railway industries.

An idea of the magnitude of the convention can be gathered from the fact that seven separate meetings were being held simultaneously in various rooms of two leading hotels on Wednesday afternoon, in addition to a showing of the talking movies at the Orpheum Theater.

L. W. Scherer, of Yale, was elected first vice-president of the association. Officers of the telephone division are: L. W. Scherer, Yale, vice chairman; John P. Youmans, Poteau, secretary; and engineer, H. W. Hubenthal, Oklahoma City.

In presenting his report to the convention, Manager E. F. McKay of the association, said of the telephone division:

"The year has been one of many duties in behalf of and much progress for the advancement of the telephone company members of the association. As is generally known, the association maintains an engineering department with a former telephone engineer of the corporation commission constantly available for the benefit of the association members.

While his duties fall chiefly and naturally in lines connected with the telephone industry, his services are available for any member of the association who has need of them, and in many cases have a relation much broader in application than service to any one division. Through this feature of our work a constant harmonious relationship has been preserved between telephone and electric light and power companies, which relationship does not exist to the same degree in all states.

Among the subjects for attention arising in the telephone division are plant construction and maintenance, traffic and commercial practices, radio development, local and toll rates and service, and any and all matters growing out of the conducting of a telephone business in communities large or small, and out of the relation of the telephone companies to the various state and federal departments concerned with telephone rate or service regulation.

In numerous matters telephone companies have been represented before the state board of equalization, always with definite results of advantage to the companies concerned. The association is represented at all telephone hearings before the corporation commission and almost invariably is able to render valuable service to the companies concerned.

The telephone division numerically is the largest division in the association, and through this division the association has a direct and continuous contact with every section of the state.

In 1926, 12 district conferences, or group meetings, were held by the telephone division in as many sections of the state. The number of district meetings was increased over that of former years in the hope that through the greater number of meetings a greater total attendance could be secured, and such was the result, the total attendance for 1926 exceeding that of group meetings for 1925 by about 25 per cent.

These meetings are valuable in the spirit of good feeling developed, as well as for the information of a practical character which is afforded those in attendance, many of whom find it impossible to be present at the annual state convention.

Telephone company managers almost invariably visit the association offices when in Oklahoma City, usually with some problem in connection with which they are in need of advice or help.

During the year, the service of the telephone division has extended to the making of inventories, accounting and traffic studies and the preparation of rate applications for numerous member companies, the services performed by the association in some of the cases saving the companies concerned large sums of money. In many cases, as result of office conferences and conferences between telephone companies, the corporation commission and the association representatives, threatened controversies are disposed of without recourse to formal procedure.

The association's telephone engineer often is called upon to assist in the preparation of annual reports to the corporation commission, giving the company members concerned the benefit of experience and advice not otherwise available.

At this time a tentative set of standard rules and regulations for telephone companies is under consideration by the telephone division with the hope that certain diverse practices may be made uniform for the convenience and advantage of the industry. Representatives of the corporation commission are being consulted constantly, and it is believed that a standard code, which will clarify the situation as to many operating practices, satisfactory to the industry and the commission alike, may be worked out.

Considerable attention has been given by telephone company members of the association to the development of radio rebroadcasting. Oklahoma was given a place on the board of directors of the National Radio Program Association, formed at Chicago in October at the time of the annual convention of the United States Independent Telephone Association.

It is a matter of interest in connection with telephone matters in Oklahoma that a graduate of the College of Engineering, University of Oklahoma, has had an important part in the development of transoceanic telephony, the most recent development in communication to challenge the attention of the world."

A. T. & T. Stock Near Record Price on Reorganization Rumor.

Stock of the American Telephone & Telegraph Co. last week after a sensational rise of 7¼ points in one day reached a high of 168, which was within one point of its record price, made in 1903, when the capitalization of the company was small compared with what it is now. On Tuesday, March 22, the stock closed at 162.

Walter S. Gifford, president of the company, reiterated on March 17, the official attitude of the company that it contemplated no reorganization of its capital structure.

"No action of any sort is even under consideration," he said. "The corporate reorganization, stock split-up and increased dividend suggested in a morning newspaper is absurd. It is out of harmony with the aims and ideals of the company, as anyone who has followed its prograss and read its report must known."

Reports that the company would organize a new company to hold stocks of affiliated companies now owned directly and that present shareholders would receive one share of the present company's and one share of the new company's stock have accompanied A. T. & T. stock's sensational rise this year. These reports have previously been denied by the company.

Preliminary Program Plans for Pennsylvania's Annual Convention.

Preliminary announcement of the convention of the Pennsylvania State Telephone & Traffic Association to be held at the Penn-Harris Hotel, Harrisburg, on May 3, 4, and 5, has been made by President H. E. Bradley.

Manufacturer's exhibits, an operators' conference, a banquet and dance, are among the features to be enjoyed

One session will be given over to the United States Independent Telephone Association for the discussion of depreciation and plant accounting.

Wisconsin Convention Scheduled for June 7-9 at Madison.

The annual convention of the Wisconsin State Telephone Association will be held at Hotel Loraine, Madison, June 7, 8 and 9, according to a recent announcement.

The Financial Side of Companies

Items of Interest Regarding Financial Matters of Independent and Bell Telephone Companies—Facts and Figures from Annual Reports Show Healthy Growth of Industry — Activities in Construction Work — Some Statistics

Granite Falls (Minn.) Company Declares 8 Per Cent Dividend.

At the 21st annual meeting of the Granite Falls Telephone Co., Granite Falls, Minn., an 8 per cent dividend on the stock of the company was declared.

According to the report of Manager G. L. Wilder, the present plant has a value of $50,000 and the company owes but $4,500. In 1922 the indebtedness amounted to $16,000, but $11,500 has been retired since then.

The annual report showed the company's earnings for the past year to be about $15,000 and the expenses about $13,000. Of the expense, $1,680 was spent in new construction, consisting of the replacement of old lines. There was also an item of $1,500 used to pay off indebtedness the past year.

The company was organized in June, 1905, and started in business with 35 subscribers. At present the company serves 689 subscribers, 432 of which are within the city and 257 in the country.

Following the reports of the year, which were read and approved, the election of directors was held. Paul G. Sheimo was re-elected and G. L. Wilder, manager of the company, was elected to the place formerly held by John J. Mooney, whose term also expired.

The officers who were then elected are: K. E. Neste, president; C. E. Wilson, vice-president; G. L. Wilder, vice-president and manager; P. G. Sheimo, secretary and P. A. McLarty, treasurer.

Rochester Telephone Corp., Rochester N. Y., Re-elects Officers.

The board of directors of the Rochester Telephone Corp., Rochester, N. Y., at a meeting held in its executive offices in the Triangle building on February 25, expressed their appreciation and approval for the satisfactory manner in which the business of the corporation was conducted during the past year, and re-elected the following officers for the year 1927:

George R. Fuller, president; Fred C. Goodwin, vice-president; Wm. B. Woodbury, vice-president; John P. Boylan, vice-president and general manager; Frank J. Brookman, vice-president; Wm. J. O'Hea, assistant to president; Thos. J. Hargrave, secretary; Chas. M. Beattie, treasurer; Stuart G. Bowie, auditor and assistant secretary, and Arthur S. Gibson, assistant treasurer.

The board approved estimates calling for an expenditure of $26,234.57, covering the purchase and installation of coin-collecting devices for public telephones, $4,483.69; battery replacement and power modification at the Glenwood central office, $2,070.00, representing the cost of replacing a part of the existing storage battery which has outlived its usefulness; the installation of two new and the replacement of three old private branch exchange switchboards, $13,264.82.

The two new switchboards are to be installed at School No. 18, North and Draper streets, and at a hotel on State street. Three private branch exchange switchboards are to be replaced by larger switchboards to provide for additional stations and trunk lines at East High School, West High School and School No. 14.

Battery replacement at Canandaigua, N. Y., involves the replacement of existing battery and charging equipment in the Canandaigua Central office at a cost of $3,324. The present batteries are practically worn out and because of the increased size of the battery covered by the new estimate, a larger charging set is required.

Northwestern Bell Report Shows Substantial Increases in Earnings.

The report of the Northwestern Bell Telephone Co. for the 12 months of 1926 shows a substantial increase in every revenue-earning department, and in net profits as well as in dividends paid. The company paid an 8 per cent dividend during the year on its common and 6.5 per cent on its comparatively small issue of preferred.

Assets of the company are $103,650,854, an increase of $4,768,267; capital stock has increased $4,439,565, and now stands at $69,439,565. The depreciation reserve is $24,992,790, an increase of $1,805,173, and its surplus $3,030,693, an increase of $1,313,002.

Total revenues for the year were $28,506,030, an increase of $1,316,612, divided as follows: Exchange revenues, $19,427,844 (increase of $734,275); toll, $8,367,268 (increase, $540,523); miscellaneous, $710,918 (increase $41,918).

Total expenses for the year were $22,454,694, an increase of $1,326,148, the main items of which are: Operating expenses, $11,367,946 (increase of $285,254); maintenance, $4,455,016 (increase, $108,045); depreciation, $4,557,737 (increase $118,354); taxes, $2,273,995 (increase, $814,695).

The net profits of operation were $6,807,108, an increase of $518,609. Dividends paid were $5,369,761, an increase of $626,761, the company having sold five-million issue of stock and retired advances from the parent company that reduced the interest payments for the year by $529,760.

Gross earnings per station were $4.270 as compared with $4.134 the previous year, while net earnings were $.906, as compared with $.921. Total telephone revenues to average plant in service was 32.21 per cent; operating expenses to telephone revenue, 39.88; telephone expenses to telephone revenue, 78.77; maintenance to average plant, 5.13, and depreciation, 4.98 per cent; net telephone earnings to plant in service, 6.96; net earnings to average capital obligations, 9.97.

The number of stations operated by the company is 560,752, an increase of 9,750 for the year; connecting stations, 933,681, an increase of 11,045; total stations, 1,494,433, an increase of 20,795.

Lima, Ohio, Company Had An Excellent Year.

That the Lima Telephone & Telegraph Co., Lima, Ohio, transacted an "exceptionally good" volume of business 1926, showed a good financial condition, gained 344 new telephone subscribers during the past 12 months, and handled 30,701,150 calls through 12,636 stations, or an average of 112 calls per day, connected by each of 120 local and long distance operators, were revealed by the report of President Emmett R. Curtin, Sr., read at the company's annual meeting. The report stated 223,420 calls were handled from pay stations.

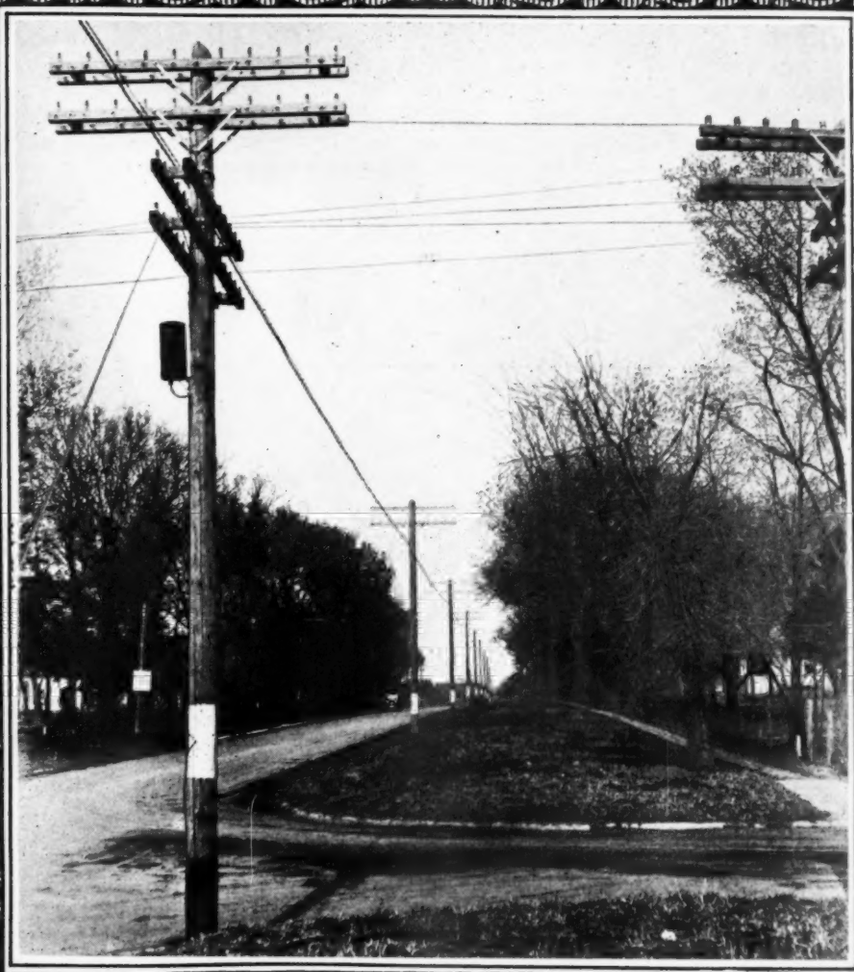
The calls average 6.8 per station each day during the past 12 months, and the average time for handling each call was 2.7 seconds, the report disclosed.

The officers reelected are: Emmett R. Curtin, Sr., president; A. D. McDonnell, vice-president; George H. Metheany, secretary and general manager; W. H. Duffield, treasurer; and O. J. Neuman, assistant secretary and assistant general manager.

Emmett R. Curtin, Jr., was elected to the board of directors. Other members of the board, all reelected are: John L. Cable, C. H. Cory, Emmett R. Curtin, Sr., W. H. Duffield, George H. Metheany, Henry Deisel, Sr., Randolph Eide, A. D. MacDonell, C. S. Maltby and A. J. Mellen.

New England Bell Net Increases But Claims Rates Too Low.

The New England Telephone & Telegraph Co. reports for year ended December 31, 1926, net income of $9,174,301 after taxes and charges, equivalent to $8.29 a share earned on 1,106,463 shares of stock which was outstanding the greater part of



P & H Butt-Treated Poles in open wire and cable pole line located on boulevard of residential section, Creston, Iowa. Lines of Creston Mutual Telephone Co.

High Quality Poles mean Low Per Annum Costs

IT costs as much to set an inferior pole as a first class pole. Yet the reliability and length of service of your entire line depend on the poles. Investigation shows that poles represent about 30% of the total line investment. The safety of the remaining 70% —the major investment—must be entrusted to the poles. "P&H Process" Poles have proved themselves equal to that responsibility.

Prompt and complete service on all cedar poles needs— Northern White or Western Red—Butt-Treated or untreated. ***"Still in the Lead"***

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Dallas, Texas, 521 So. Akard St.

the year. This compares with $3,921,220, or $4.72 a share, or 830,254 shares in 1925.

Income account for 1926 compares as shown in the accompanying table:

The balance sheet of the company as of December 31, 1926, follows:

Assets: Land and buildings $21,787,397, telephone plant and equipment $212,195,529, investments and advances $2,325,979, cash and deposits $1,270,650, marketable securities $17,435, bills and accounts receivable $7,832,617, materials and supplies $1,142,940, prepayments $805,802, unamortized debt, etc., $5,113,054, deferred items $1,647,322; total, $254,138,725.

Liabilities: Capital stock $110,646,300, funded debt $86,820,000, bills and accounts payable $3,182,352, accrued liabilities $2,594,433, employes' benefit fund $2,000,000, deferred credits $35,726, depreciation reserve $47,559,193, surplus $1,300,721; total, $254,138,725.

In connection with the annual report, President Matt B. Jones stated that "the surplus of $335,398 for the year would not have been possible but for a reduction made by the American Telephone & Telegraph Co. in its compensation under the license agreement from 4½ to 4 per cent per annum and which resulted in a saving of $325,000 to the company.

"The financial results under rates now in effect have not been adequate to afford the company a fair return upon the value of its property."

President Jones illustrated the smallness of this margin by a comparison. The gross revenues of the company for 1926 were approximately $63,321,000, and after the payments of operating expenses, taxes, interest and dividends, there was left a balance of approximately $335,400.

A business man who does a gross business of $40,000 a year and has a surplus of only $200 left at the end of the year will have comparatively the same margin that the New England company had last year. Or, if a man who earns an income of $5,000 a year succeeds, after the payment of all his living expenses, in putting $25 into the savings bank as a provision for the rainy day, he is doing about as well as the company did in 1926 under its present rates.

In conclusion President Jones said: "The management believes that a full and fair trial must be made of the rates which have been granted to it, but the foregoing facts present problems which will have the careful consideration of your directors during the coming year.

"During the year 1926, 218,936 telephones were installed and 174,787 disconnected with a net gain of 44,149 telephones for the year. The company expects that the net gain in 1927 will be approximately the same as in 1926.

"Gross expenditures for construction and general equipment were approximately $27,086,761. The gross expenditures for construction planned for 1927 will amount to approximately $20,000,000.

	1926	1925	1924	1923
Oper. rev.	$62,638,104	$54,405,849	$47,565,247	$44,208,570
Net aft. tax	13,220,259	8,521,453	6,849,365	5,443,086
Gross inc.	13,903,233	9,180,025	7,702,396	6,262,350
Net inc.	9,174,300	3,921,220	3,732,303	3,194,203
Dividends	8,838,902	4,981,524	6,311,048	5,318,096
Surplus	335,398	*1,060,304	*2,578,745	*2,123,893

*Deficit.

Operating Results of Past Four Years of New England Telephone & Telegraph Co.

Progress of Platte Valley Telephone Co., Scottsbluff, Neb.

The Platte Valley Telephone Co., Scottsbluff, Neb., at its annual meeting last month reelected directors as follows: Eben D. Warner, chairman; W. H. Ostenberg, Sr., Jonas Zoellner, H. M. Carmean and Otto Fuerst. The directors later elected these officers: Eben D. Warner, president; W. H. Ostenberg, Sr., treasurer and H. M. Carmean, secretary.

Mr. Warner told of the company's development and growth during the year, making a comparison of the business of the company at the present time and that as shown by a report made by Fred Alexander, president of the company in 1906, and clearly illustrating the remarkable development made in the valley in 20 years.

Mr. Warner's report showed that the territory now served by the company is equal to that served by the Lincoln Telephone & Telegraph Co. and he expressed faith that in another decade the population of the Platte Valley would equal that now served by the Lincoln company, excluding the city of Lincoln.

Otto Fuerst, plant superintendent, explained that during the past 12 months a new common battery all-cable plant had been installed at Minatare; underground cable had been put in at Gering as well as new copper toll circuits; that the plant men had worked 2,632 telephone orders resulting in a gain of 406 telephones for the year.

The gain in telephones for the year is a fine illustration of the steady growth and progress that has been made all over the valley. It is as follows: For Bayard 44; Gering 41; Lingle, no change; Lyman 4; Melbeta 1; Minatare 43; Mitchell 55; Morrill 13; Scottsbluff 180; Torrington 57; Yoder 2; while in Guernsey there was a loss of 5. These figures include the mutual lines which are owned by the farm subscribers themselves.

The report of H. M. Carmean, traffic superintendent, showed that there had been a marked increase in both local and toll business over that of 1925. There were 195,429 toll calls during the year, which was an increase of 38,816, or 24.8 per cent. The local traffic showed a gain of more than 20 per cent.

On the Scottsbluff switchboard in 1925 the number of calls handled daily was between 7,000 and 7,500 while during 1926 the calls averaged from 9,000 to 9,500 per day.

The budget for the new improvements for 1927 includes a new exchange at Lyman, which will be strictly modern, of common battery and cable type.

Bell Telephone Co. of Canada Earned Less Last Year.

Despite an increase of over $2,000,000 in telephone revenues during the year, the annual report of Bell Telephone Co. of Canada, for the year ended December 31, 1926, reveals a sharp decline in both operating income and net earnings, the former being down at $3,747,706 from $4,692,204 the preceding year, while the latter is down at $2,465,876 from $3,888,453.

Gross revenues at $28,460,923 compared with $26,168,977, an increase of $2,291,946. On the other hand, operating expenses showed an increase of $3,215,112 at $23,486,143, as compared with $20,271,031; this left net revenues of $4,974,780, down from $5,897,946.

After all deductions and appropriations, net income available for dividends was shown at $2,465,876, or equal to 5.02 per cent on the outstanding capital stock of $49,080,400, this comparing with net earnings for the previous year of $3,880,454, equal to 7.96 per cent on outstanding capital stock.

The comparative income statement of the company follows:

	1926	1925
Telephone operating revenues	$28,460,923	$26,168,977
Net telephone operating revenues	4,974,780	5,897,946
Deductions from operating revenues	1,227,075	1,205,742
Operating income	3,747,706	4,692,204
Net non-operating revenues	633,878	787,903
Total gross income	4,381,583	5,480,108
Rent and interest	1,915,707	1,599,654
Balance net income	2,465,876	3,880,454
Deduct dividends	3,906,802	3,889,166
Deficit	1,440,926	8,712

The balance sheet reveals a drastic change in working capital position. The following table shows a comparison for the past three years:

	1926	1925	1924
Current assets	$3,458,493	$6,137,500	$3,668,481
Current liabilities	8,529,840	1,807,174	1,611,741
Working capital	*5,071,347	4,330,326	2,056,740

*Deficit.

The Prest-O-Lite Gas Torch produces a blue flame, easy to work with and easy on the eyes

Work with the proper flame

THE Prest-O-Lite Gas Torch produces a flame, concentrated and controlled, for safe application to any kind of torch work. A variety of tips makes it possible to vary the shape and size of flame so that its heat can be most efficiently utilized. Perfect control of the flame and its easy restriction to the working area protect nearby parts and materials from possible injury.

The Prest-O-Lite Gas Torch does better work—safely, quickly. It is always ready with the flame and temperature that best suit the job. There are no delays—pumping, generating, or heating-up. The tank and torch can be carried anywhere and used immediately.

This torch uses Prest-O-Lite Gas—the same gas used extensively for economical truck lighting. The cost of the gas is small. Empty tanks are exchanged for full ones for the cost of the gas only. Exchange can be made at any one of the thousands of Prest-O-Lite Gas exchange stations throughout the country.

Write for complete information, stating your blow-torch uses.

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What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

One Bell Company Planned to Operate New Jersey Properties.

The New York Telephone Co. and the Delaware & Atlantic Telegraph & Telephone Co. on March 21 filed with the New Jersey Public Utility Commission at Trenton a joint petition asking the approval of the sale by the New York Telephone Co. of all its property in New Jersey to the Delaware & Atlantic Telegraph & Telephone Co., the latter company to issue approximately $73,000,000 par value of stock in payment for the property.

The petition states that the object is to consolidate all the property of both companies in the state of New Jersey under one corporation which will be devoted entirely to the telephone interests of the state of New Jersey and thereafter there will be only one Bell company operating in the state.

The New York Telephone Co. which is incorporated in both New York and New Jersey, owns and operates the telephone property in the northern and eastern part of the state. The Delaware & Atlantic Telegraph & Telephone Co. is a New Jersey corporation already operating in western and southern Jersey exclusively. If the plans are approved, it will change its name to the New Jersey Bell Telephone Co. or some similar appropriate name.

The principal effect of the transaction is the localizing to the state of New Jersey of the executive management of the property and service. At the present time the headquarters of the New York Telephone Co. is located in New York City with the general manager of the operating department located at Newark.

The headquarters of the Delaware & Atlantic Telegraph & Telephone Co. is in Philadelphia and its general offices and part of its engineering supervisory organization are common to it and the Bell Telephone Co. of Pennsylvania and the Diamond State Telephone Co. With the rapid growth in the telephone business, which has taken place throughout the state during the past several years, it is felt that the telephone property in New Jersey has reached a size where material advantages can be realized by establishing an organization whose attention will be devoted entirely to the management of telephone affairs in New Jersey.

If the plans are approved by the New Jersey commission it is expected that the official staff of the Delaware & Atlantic Telegraph & Telephone Co. will be expanded to meet the increased responsibilities and that the new organization will locate its headquarters in the state of New Jersey—the exact location to be determined upon by the management.

City Council Agrees on Franchise Specifying Rates.

After several conferences between representatives of the Southern Bell Telephone & Telegraph Co. and the board of council of the city of Lawrenceburg, Ky., an agreement has been reached whereby the company will be granted a franchise to operate in the city on a basis of $3.50 for business houses and $2 for residents.

Terms of the agreement provide that the work of connecting the physical properties of the two companies now being operated separately be started at once. A single service shall begin to be rendered September 1, or as soon thereafter as practicable.

Michigan Bill Would Extend Power of State Commission.

The Michigan senate utility committee, of which Senator Howard F. Baxter, of Grand Rapids, is chairman, has acted favorably upon the Lennon bill that would give the Michigan Public Utilities Commission the right to inquire into contracts foreign corporations have in Michigan companies on which the Michigan utility must pay a percentage of its earnings.

Senator Peter B. Lennon of Lennon, introduced the measure early in the session with the express purpose, he said, to give the utility commission authority to inquire into the contract between the Michigan Bell Telephone Co. and the American Telephone & Telegraph Co.

Toll Charges May Differ Without Creating Discrimination.

Toll charges of small companies and large companies for like distances may differ without this fact creating a discriminatory condition, says the Nebraska State Railway Commission, in passing upon a complaint filed against the Pawnee Telephone Co. by a connecting company. In the same order, the Pawnee company is given authority to amend its toll rates so that for station-to-station service, where the initial charge is below 30 cents, the initial period of conversation before extra charges are assessed shall be five minutes.

The matter came before the commission on the complaint of the Table Rock company, which charged that the Pawnee company was guilty of discrimination. The rates complained of are from Table Rock to Pawnee City and Table Rock to Dubois, the respective distances being 4½ and 9 miles and the charges are 14 and 25 cents, based on three-minute conversations and station-to-station calls.

The complainant owns a half-interest in the toll circuit between Table Rock and Pawnee, and the Pawnee company the other half. A toll message from Table Rock to Dubois is routed through Pawnee over that jointly-owned circuit, and from there over a circuit jointly owned by the Pawnee company and the Dubois company. The discrimination complained of was that the charges were from 40 to 90 per cent higher than the schedule of the Lincoln company in that section of the state. It asked for a reduction.

The Pawnee company insisted that its profits from toll business do not warrant a reduction in rates; and if it did toll business at a loss, the subscribers would have to make it up in increased exchange rates. The amount of toll business over the circuit, the commission finds, indicates the profits are not unreasonable. There is a possibility that a reduction might stimulate business, but there is no reason to believe it would more than make up the reduction in revenue that would follow.

In passing upon the question of whether higher toll rates by small companies than are charged by large companies are discriminatory, the commission says:

"Variance in rates for similar service rendered by different companies is not necessarily discriminatory unless all operating factors are equal. In this instance the toll rates of the Lincoln Telephone & Telegraph Co., whose toll plant thoroughly covers the southeast section of Nebraska, have been set up as a comparison to the rates of an Independent company whose toll plant is mediocre in comparison.

The Pawnee Telephone Co.'s toll plant extends only short distances to a few neighboring villages and is used almost exclusively for short-haul business. The short-distance toll rates of the Lincoln Telephone & Telegraph Co. are a part only of a large toll rate structure. Furthermore, the toll plant involved in short-haul messages is also used for long-haul business, an advantage not enjoyed by the small Independent companies. No discrimination existing, no reduction in toll rates will be required of defendant company."

Organizes Company to Operate Party and Toll Line.

Joseph McGuire has incorporated in Nebraska the McGuire Telephone Co. for the purpose of constructing and operating a 14-mile long telephone line from the

town of Purdum to Halsey, at which point the Northwestern Bell company has an exchange.

He proposes to serve 40 farmer patrons, whom he will charge $10 a year for service. Six dollars of this sum will be paid at Halsey for switching. He will put another wire on the poles for the purpose of using it for toll messages, for which he asks of the state railway commission permission to charge 25 cents a message.

In his statement to the commission, he says he will invest $1,041 in the equipment, and expects a gross revenue of $582 a year, and figures that this will leave him a net profit of $38.80 for that period.

Former Kinlock Headquarters in St. Louis Sold by Bell.

Sale of the six-story Kinloch Telephone Co. headquarters building in St. Louis, Mo., to Joseph C. Sanders, president-treasurer of the American Foundry & Manufacturing Co., for $1,050,000, was made known March 9, when the Southwestern Bell Telephone Co. filed application with the Missouri Public Service Commission for permission to dispose of the structure.

The former Kinloch Telephone Co. headquarters came into the hands of the Southwestern Bell company several years ago by the merger of the two companies and was recently vacated by that company on completion of its new headquarters at Tenth and Pine streets.

The process of financing, as contained in the application before the public service commission, provides that Mr. Sanders shall pay $150,000 cash and fund the remainder in a first mortgage bond issue.

Citizens Company of Delaware, Ohio, Purchases Property.

The sale of the property of the Ostrander Telephone Co., Ostrander, to the Citizens Telephone Co., Delaware, was recently approved by the Ohio Public Utilities Commission.

The commission valued the property of the Ostrander company at $26,200, and authorized the Citizens Telephone Co. to issue its common capital stock of the par value of $26,200, and deliver it to the Ostrander company in payment for the property.

Hearing on Kenton, Ohio, Rates Continued to Permit City Check.

The hearing of the Kenton telephone rate case before the Ohio Utilities Commission has been continued for an indefinite period to permit the city to check over valuation figures submitted by the Kenton Telephone Co. on its properties in Kenton as a basis for the increased rates.

George Martin, Columbus, engineer for the company, testified before the commission that the valuation of the Kenton properties, according to his inventory, was in excess of a half million dollars.

The rate case opened several months ago when the Kenton Telephone Co. filed application with the Ohio commission for permission to increase its rates on service to local patrons. Kenton's council immediately filed protest, holding that the rates were excessive and unreasonable.

Increased rates are now being collected by the telephone company under bond filed with the state commission to cover rebates in the event a lower schedule is directed.

Orders Company to Complete Toll Calls Through Another Exchange.

In the complaint of H. M. Krebs of Eagle City, Okla., vs. Watonga Telephone Co., of Watonga, the Oklahoma Corporation Commission ordered the latter company to give telephone service to the complainant through the Oakwood exchange.

Mr. Krebs complained that the company refused to complete toll calls from its exchanges to him through the Oakwood exchange of the Oakwood Telephone Co. and alleged discrimination. The Watonga Telephone Co. denied discrimination and filed a cross petition asking for discontinuance of the line serving the complainant, alleging that the line was built in competition with the toll line of the Watonga Telephone Co. connecting Eagle City and Oakwood and that the complainant receives exchange service from the Oakwood exchange within the city or exchange limits of the Eagle City exchange of which the Watonga Telephone Co. is owner.

The commission found that the complainant is a bona fide subscriber of the

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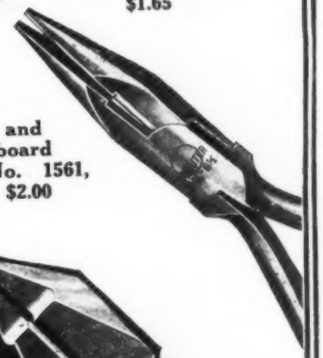
Diagonal Cutting Pliers. No. 2601, 6 in. $1.65



Radio and Switchboard Pliers. No. 1561, 6½ in., $2.00

Kraeuter Lineman's Pliers, No. 2801, 8½ in., $2.75

EVERY pair of Kraeuter Pliers is hardened with extreme accuracy.

Their cutters are *hard* but not brittle.

Their rugged lap-joints *fit close* and hold the cutters true.

Every pair is tested at the factory for *strength*, *toughness* and *cutting power*.

KRAEUTER PLIERS

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Oakwood Telephone Co., which is a mutual company, and that the Watonga Telephone Co. owns toll lines from Eagle City to Oakwood, Canton, Watonga, Fay and other nearby points from which various persons have attempted to call the complainant at Oakwood by placing calls in the regular established manner, and that service was refused.

The commission denied the application of the Watonga Telephone Co. for discontinuance of the line serving the complainant and ordered that that company complete to H. M. Krebs all calls handed to any station over which it has control through the Oakwood exchange, so long as Mr. Krebs is a bona fide subscriber of the Oakwood exchange and the person placing the call is ready to pay regularly-established toll rates, and that he be given the same service as any other bona fide subscriber of the Oakwood exchange.

Pennsylvania Bell Company to Buy A. T. & T. Local Lines.

A contract which will make the Bell Telephone Co. of Pennsylvania the sole owner of long distance circuits as well as local lines, was filed March 10 with the Pennsylvania Public Service Commission at Harrisburg.

The contract provides for the sale of plants, lines and rights of the American Telephone & Telegraph Co., in 46 counties, for $1,976,735.40.

In the past all long distance calls have been made jointly over the lines of the two companies, the American company operating the connecting lines and switchboards between cities and towns where the Pennsylvania Bell company operates.

Summary of Court Proceedings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION, WASHINGTON, D. C.

March 31: Hearing before Examiner Davis on the application of the Chesapeake & Potomac Telephone Co., W. Va., for a certificate that the acquisition by it of certain properties of the Consolidated Power & Light Co. in the town of Milton and Cadell county, would be of advantage to persons to whom service is to be rendered and in the public interest.

ILLINOIS.

March 23: Hearing at Chicago before Commissioner Wright in the matter of proposed advance in rates for service in Park Ridge and Des Plaines stated in rate schedule Ill. C. C. 3, rendered by the Des Plaines Telephone Co.

March 23: Hearing at Chicago before Commissioner Kuhn on the motion of the commission against the Belvidere Telephone Co., Belvidere, of citation to show cause for failure to reconstruct and restore service over the Belvidere-Cherry Valley line.

March 24: Hearing at Chicago before Chairman Jackson on the matter of petition of the Illinois Bell Telephone Co. for an order authorizing and approving the sale of certain properties located in Chicago to the Chicago Title & Trust Co. for the sum of $450,000.

INDIANA.

March 7: Mooreland Rural Telephone Co., Mooreland, filed application asking for an increase of rates in order to give it a 7 per cent return on its investment. The petition alleges that the present rates do not give the stockholders a sufficient return on their money and that the corporation is losing money under the current rates.

March 8: Petition filed of the Whippoorwill Telephone Co. to sell its exchange in Fulton and Marshall counties to the Rochester Telephone Co., Rochester, for $3,500.

March 9: Petition filed with the public service commission by the Citizens Independent Telephone Co., Terre Haute, for authority to sell 3,430 shares of 7 per cent preferred cumulative stock. The company plans to replace manual equipment with automatic devices. The total estimated cost of the work is listed at $876,564.84.

MISSOURI.

March 9: Application filed by Southwestern Bell Telephone Co. for permission to dispose of the former Kinloch telephone building in St. Louis, as it has no use for the property.

NEBRASKA.

March 15: In the matter of the application of the Northwestern Bell Telephone Co. for permission to cancel three sections of its general supplemental tariff covering obsolete services, ordered that authority to withdraw rates and service be granted.

March 15: Application filed by the Beaver Valley Telephone Co. for permission to establish schedule of rates for Marion, where exchange was recently permitted to be closed, the subscribers being served by farm lines from adjoining exchanges.

March 16: Application of Wauneta & Palisade Telephone Co. for authority to dispense with certain free service and for permission to establish rate schedule for service thus given.

March 17: Hearings held at Nelson on application of Nuckolls County Telephone Co. for authority to increase capital stock from $50,000 to $100,000, part of it to be used in payment of dividends earned but not paid and $14,000 to purchase the property of the Hardy Telephone Co.; no one appeared in opposition, testimony adduced and cause taken under advisement.

March 17: Hearing at Nelson on applications of Lawrence Telephone Co. for authority to increase rates following extensive rebuilding of lines and improvement of service and to issue additional stock; no one appeared in opposition; evidence adduced and case taken under advisement.

March 17: Application filed by Northwestern Bell Telephone Co. for authority to add a charge of $2 for party-line service to existing rate schedule.

March 18: Complaint filed by Peter Christenson against Cozad Mutual Telephone Co. alleging charging of unjust rate.

March 18: Complaint filed by Bartos & Bartos, of Wilber, against Lincoln Telephone & Telegraph Co. alleging excessive charge for installation of farm-line service.

March 19: In the matter of the application of the Angier Telephone Co. for permission to publish a schedule of rates; supplemental order issued making permanent the temporary schedule approved in September, 1926.

March 19: In the matter of the complaint of subscribers of the Dalton Telephone Exchange that service is insufficient; ordered that the company substitute 24-hour a day service for the existing hours, conditioned upon the putting into effect of an increased schedule of rates authorized by the order attached.

March 19: In the matter of the application of the Ayr district of the Glenwood Telephone Co. for increase in rates; ordered that schedule approved March 21, 1926, for one year, be made permanent.

March 30: Hearing of application of Garfield Mutual Telephone Co. for increase of stock authorized.

April 7: Hearing at Verdigre of application of Washington & Western Telephone Co. for an increase of rates.

April 8: Hearing at Page of complaint of Walnut Grove Telephone Co., of Venus, against Page Telephone Co.

NEW JERSEY.

March 22: The New York Telephone Co. and the Delaware & Atlantic Telephone & Telegraph Co. filed joint application asking approval of the sale by the former of its property in New Jersey to the Delaware & Atlantic company. The latter will issue about $73,000,000 par value stock in payment. The object is to consolidate the property of both companies in New Jersey.

NORTH DAKOTA.

March 10: Application of the Dakota Central Telephone Co., Aberdeen, S. D., for authority to issue and sell 2,500 shares of preferred stock, approved.

March 10: Application of the Dakota Central Telephone Co., Aberdeen, S. D., for authority to discontinue the telephone exchange at Venturia and connect the subscribers by farm line service from Ashley exchange, granted.

March 10: Filing of revised schedule of exchange rates by the Dakota Central Telephone Co., Aberdeen, S. D., for Ashley, approved.

March 10: Hearing of the Northwestern Bell Telephone Co., on the filing of rules and regulations governing exchange service in North Dakota.

March 10: Hearing of the Buffalo Telephone Exchange, Tower City, against the Otter Tail Power Co., on complaint of interference by transmission line.

March 10: Joint application of Otto W. Mueller and Mina Semmler to sell and buy, respectively, the telephone property located at Stanton, approved.

March 10: Joint application of Mina Semmler and Rosalia Mueller for authority to sell and buy, respectively, the telephone property located at Stanton, approved.

March 10: Application of Rosalia Mueller for authority to place a mortgage upon the public utility property located in Stanton, approved.

OHIO.

February 26: Joint application of Ostrander Telephone Co., Ostrander and the Citizens Telephone Co., Delaware, approved, for the purchase by the Citizens company of the property of the Ostrander company. The Citizens Telephone Co. authorized to issue stock in payment.

March 9: Hearing at Columbus on application filed by Kenton Telephone Co., Kenton, for increased rates. The new rate schedule carries an increase of almost 50 per cent for every rate.

OKLAHOMA.

March 18: Hearing held at Fairfax on complaint of the city of Fairfax alleging inadequate telephone service.

PENNSYLVANIA.

March 10: Joint application filed at Harrisburg of the Bell Telephone Co., of Pa., and the American Telephone & Telegraph Co. for approval of the purchase by the Pennsylvania company of certain plants, lines and rights of the American company in 46 counties, valued at approximately $2,000,000.

With the Manufacturers and Jobbers

Siemens Brothers & Co. in England and Other Countries.

It is interesting to observe the progressive business spirit that is being displayed in recent years by Siemens Brothers & Co. Ltd., of Woolwich, London, throughout the world, and particularly in the telephone field in the North American continent.

Having been very successful at home, as witness of the important telephone exchanges in Great Britain which are of their manufacture, and in various countries abroad, they determined, after making a careful study of the field, to enter the Canadian market.

In 1921 they sent their representative to visit various telephone administrations in Canada. He was able to convince a number of them that Siemens Brothers' automatic system, based on "British practice," was equal, if not superior, to anything with which they had had experience, and that the general workmanship and finish of the apparatus, cabling, etc., was of the highest standard.

As the result of his efforts he returned to England with a number of substantial orders, among them being a 6,000-line automatic equipment for St. John's exchange, Winnipeg, a 285-line automatic rural exchange equipment for Indian Head, Saskatchewan, and several large P. A. B. X. equipments, all of which were duly installed and cut-over without a hitch.

To enable them to deal efficiently with their Canadian business, the parent company formed a Canadian company under the name of Siemens Brothers (Canada) Ltd., with their registered office at Winnipeg, and having T. H. Johnson, K. C., late attorney general for the Province of Manitoba, as the president.

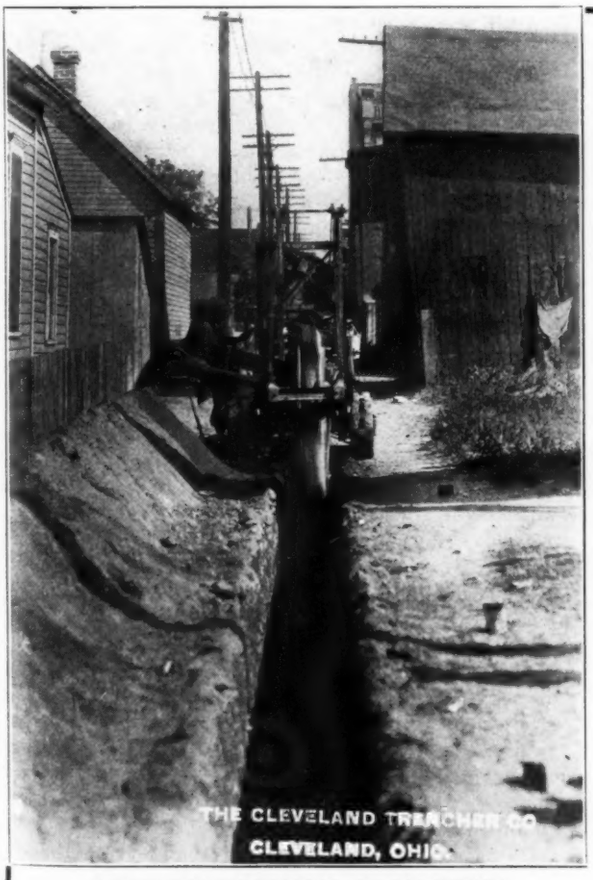
The original orders have been followed by a number of repeat orders, St. John's exchange, Winnipeg, having since had two extensions added, totaling 600 lines, as well as special equipment, such as pay-station lines, etc.

An order for West exchange, Winnipeg, 1,700 lines automatic, soon followed, as well as a number of P. A. B. X. equipments, one especially, being for the Hudson Bay Co.'s department store in Winnipeg, to the equipment of which several extensions are now being added.

Sieman Brothers' latest successes in Canada have been the securing of orders for a 2,200-line automatic equipment for Edmonton, and a 1,300-line automatic equipment for Nutana, Saskatoon, Can.

They have also orders for several submarine cables for the British Columbia Telephone Co., one being a loaded submarine telephone cable for the Gulf of Georgia, 26 nautical miles in length, containing four gutta percha insulated conductors designed for providing four circuits and embodying all the features necessary for meeting the latest requirements of telephonic transmission; and another 11,500 feet long, a paper-insulated, lead-covered and armored submarine telephone cable containing 20 conductors. A special feature of the latter cable is that although it weighs about 40 tons, it has been manufactured, and will be laid, in one continuous length without a joint.

They have many orders in hand for the British telephone service, including the important work they are doing in connection with the conversion of the London system to automatic working. Quite recently Siemen's Brothers & Co. completed a contract for the Edinburgh area for automatic exchanges amounting to 14,000 lines. This constituted one of the largest contracts for automatic exchange areas that has so far been placed by the British government for the post office department.



NOTE COMPACTNESS OF MACHINE

THE BABY DIGGER
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Spend 20% and Save 80%

With a Baby Digger you will save 80% over your present costs of trenching by hand.

This statement is based on actual cost records kept by telephone companies now using the Baby Digger.

CAN YOU AFFORD TO OVERLOOK THIS ECONOMY?

Let Us Send Complete Information

The CLEVELAND TRENCHER CO.
"Pioneers of the Small Trencher"
20100 St. Clair Ave. Cleveland, O.

The company has also carried out contracts, or has orders in hand, for automatic telephone exchanges for other countries, including Australia, Brazil, Canada, Chili, Egypt, South Africa, etc. Its progressive policy recently attracted the attention of the Gary interests, of Kansas City, Mo. This has resulted in cooperation in a number of enterprises, among which may be mentioned the British Columbia Telephone Co. and the New Antwerp Telephone Co. in Belgium.

It is expected that this cooperation may have a far-reaching effect in the telephone business of the world. It is cooperation of this nature that is welcomed by far-seeing business men on both sides of the Atlantic as leading to a better understanding between Great Britain and the United States and helping to establish peace and prosperity throughout the world.

"P. C." Burns, Pioneer Independent Manufacturer, Dies.

Peter Cooper Burns, chairman of the board of directors of the American Electric Co., Inc., Chicago, and the dean of the Independent telephone manufacturers, passed away at the Wesley Hospital, Chicago, on March 22. The immediate cause of death was peritonitis which followed an operation for appendicitis. Mr. Burns was 62 years of age. Interment was at Fond du Lac, Wis., on March 25.

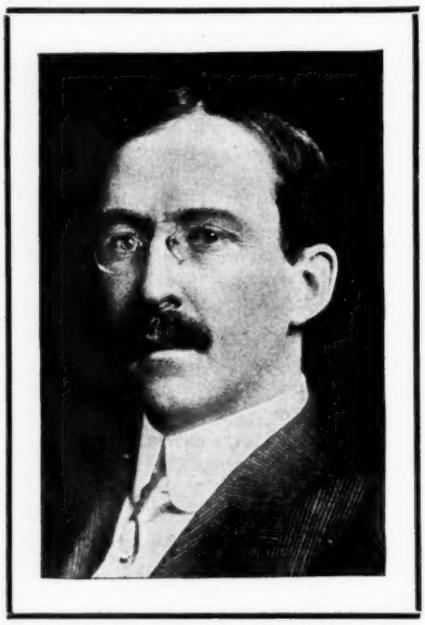
Mr. Burns started in the telephone business when very young for, as a boy of 15, he made accoustic telephones at his father's home. At 16 he was employed by the Bell company as operator, and later as inspector, in the Chicago exchange. He worked on Bell apparatus in the factory of the Electrical Merchandise Co.; was a traveling salesman for the firm, afterwards known as the Knapp Electric Works, and started the first electric supply agencies on the South Side, Chicago, and in St. Louis.

He established and conducted the St. Louis Electric Supply Co., the Findlay Glass & Carbon Co., the Peru Electric Mfg. Co., the Laclede Carbon & Electric Co., and the American Electric Telephone Co., of Chicago. He became president of a number of Independent telephone and toll line companies in the middle '90's; owned the Rose & Rein Electrical Works at St. Louis and built the Peru Porcelain Works for the manufacture of insulators and fuse blocks.

For the past 45 years Mr. Burns was one of the most active men in the telephone business, having been instrumental in bringing about many of the improvements in telephone apparatus and service which have been adopted as standard in the manufacture of modern equipment.

He first designed the standard compact magneto telephone cabinet; is said to have been the first to make and market the now universally-adopted concealed binding-post receiver; he made the first commercially successful self-restoring drop switchboard, known throughout the telephone field as the Burns "Express." He is said to have been the first to make and sell the present standard type of desk stand, and to design and sell the adjustable head-band receiver universally used for switchboard and radio work.

In 1900 Mr. Burns marketed the "harmonic" type of ringing system, and was the first to make and sell the removable lever switch-hook and the granular carbon "long distance" transmitter. He is responsible also for many other important telephone devices, but the foregoing serves to indicate his experience and position as one of the leading pioneers in the telephone business. He served as director of the national association among his other activities in the field.



The Late "P. C." Burns, Oldest Maufacturer in Independent Field, and Well Known Throughout Country.

Mr. Burns turned his attention to the manufacture of telephone apparatus in the 1880's. He was engaged in the business of supplying equipment to Independent companies several years before the United States Supreme Court sustained the Bell patent, and at that time was making dry batteries at Kokomo, Ind. He decided to carry on the fight and sent circulars broadcast throughout the Middle States offering to supply in any quantities "telephones exactly like those used by the Bell company."

According to the records, one of these circulars fell into the hands of Eugene L. Brown, a leading druggist at Noblesville, Ind., who organized a speaking company there. Brown and Burns got together and after many difficulties produced a switchboard that was installed and started the Independent telephone movement in the state of Indiana.

P. C. Burns was a fighter who throve on opposition, and he eventually had a manufacturing organization under the name of the American Electric Telephone Co. in operation in Chicago that bore an important part in the early days of telephone competition.

Many of the men who have achieved prominence in the Independent telephone field received their training and experience while associated with "P. C.," as he was familiarly known. J. G. Ihmsen, now general manager of the Up-State Telephone Association of New York, was an official of the American Electric company a number of years.

Mr. Burns never married and is survived by a brother, James A. Burns, of Fond du Lac, Wis., and a sister, Mrs. M. F. Martindale of Nashville, Tenn.

Conference of Class A Companies of National Association.

The annual conference of the class A member companies of the United States Telephone Association is to be held May 12, 13 and 14, at the Edgewater Beach Hotel, Chicago. The conference will be held somewhat later this spring than in past years due to the fact that a number of state telephone conventions are scheduled for April.

Sagging of Power Wires Put 100 Telephones Out of Service.

Sagging of Iowa Light, Heat & Power Co.'s high tension wires on to open telephone wires caused a conflagration at the cross-connecting rack in the office of the Remsen-Alton-Granville Telephone Co. at Remsen, Iowa, on March 11.

Fred Reinholdt, a former employe, heeding the alarm of fire, rushed to the central office and put out the blaze before the fire company could respond. Over 100 telephones were put out of service. Service was speedily restored.

Fire Danger Fails to Daunt Village Heroine.

The village of Clymer, N. Y., was recently saved from destruction by fire by Miss Ethel King, night operator in the telephone exchange. It was due to her alertness that the progress of the flames was checked and several buildings saved.

Not only did she arouse the whole village, but she called for outside aid from Corry, Pa., and Jamestown, N. Y. The telephone building was one of those destroyed, but the operator refused to leave her post until she had done everything possible in securing aid.

Prices in the Metal Markets.

New York, March 21—Copper—Steady; electrolytic, spot and futures, 13.37c. Tin—Easier; spot and nearby, $68.75; May, $67. Iron—Quiet; No. 2 f.o.b. eastern Pennsylvania, $20.50@21; No. 2 f.o.b. Buffalo, $17@18; No. 2 f.o.b. Alabama, $18. Lead—Dull; spot, 7.65c. Zinc—Easy; East St. Louis, spot and futures, 6.65@6.70c. Antimony—Spot, 11.75@12.

Condensed Telephone News

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items Relating to Construction, Rebuilding, or Changes in Their Plants and Systems

Incorporations and New Telephone Companies.

LEWISTON, IDAHO—Articles of incorporation have been filed by the Red Rock Telephone Co., formed to operate a farmers' line in the Potlatch region, between the towns of Lenore, Leland and Agatha.

SPRINGFIELD, ILL.—Papers of incorporation have been issued to the Smithville Telephone Co., Mapleton, by the Secretary of State. The firm was incorporated as a not-for-profit concern to operate a telephone system by Chris Haney, J. H. Parr, R. T. Janssen and James A. Parr.

SPRINGFIELD, ILL.—Papers of incorporation have been issued to the Coal Valley Telephone Central Association by the Secretary of State. The firm will maintain a switchboard and terminal line at Coal Valley, and was incorporated as a not-for-profit concern by Z. H. Wynn, John Sievers and G. P. Samualson.

COLUMBUS, OHIO—Papers have been filed with the Secretary of State chartering the Trumbull Telephone Co. of Rock Creek, Trumbull township, Cuyahoga county, with an authorized capital of $1,400 to render a public service by maintaining and operating lines already constructed and other lines to be added, giving service to Hartsgrove, Trumbull and Harpersfield townships, Coyahoga county, and to connect with lines of adjoining exchanges. The incorporators are John Gaynor, Fred Hoffman, William Behm, Bert Harrington and Herman Webber.

Financial

SAN FRANCISCO, CALIF.—Stockholders of the Pacific Telephone & Telegraph Co. have approved the proposal to increase the common stock of the company from $53,000,000 to $103,000,000. The company has been granted permission by the railroad commission to issue and sell the additional $50,000,000 of common stock.

Officers announced that the entire amount will be offered to present holders of both preferred and common shares. Subscriptions from them will be received on the basis of one share for each 2½ shares of stock now held, the price being $100.

PAWNEE CITY, NEB.—A dividend of 2 per cent for the last six months of 1926 has been paid by the Pawnee Telephone Co. The company paid 3 per cent for the first half of the year, and during the preceding two years paid at the rate of 6 per cent a year. The Pawnee company gained 15 telephones in the year and has 753 stations.

CHARLOTTESVILLE, VA.—An amendment to the charter of The Palmyra Telephone Co., Charlottesville, was recently filed by Geo. E. Walker, president, and F. W. Twyman, secretary. It increased the company's maximum authorized capital stock from $10,000 to $25,000.

Construction.

WALDO, ARK.—The Waldo Telephone Co., E. T. Block, owner, plans extensive improvements and repairs.

ROCKWELL CITY, IOWA—In line with its policy announced last July, when new capital was invested in the plant through the Continental Telephone Co., the Central Mutual Telephone Co. has been gradually making and is continuing to make improvements on its system that will aggregate at least $40,000 of expenditures before the end of the present year.

It has overhauled and rebuilt about 70 miles of its heaviest leads. A great deal of rebuilding of lines has been done in the Lake City district. Manson will receive extensive improvements. Service in other towns is being given attention by maintenance and construction crews. Rural lines are constantly being rebuilt and overhauled.

A big investment has been made in Rockwell City improvements during the last three months.

Elections.

ROSEVILLE, ILL.—Stockholders of the Roseville Telephone Co. have elected these directors: Arthur Taylor, Myrtle Dixon, W. V. D. Moore, J. W. Watson and H. B. Cash of Avon, with Mr. Moore as president; H. B. Cash, vice-president, and Mr. Taylor, secretary and treasurer. C. H. King has been retained as manager.

HUNTINGTON, IND.—E. P. Beaver, president; Anderson Potts, vice-president, and D. W. Paul, secretary-treasurer, were reelected at the annual stockholders' meeting of the Majenica Telephone Co. W. A. Thompson was elected director from the Mt. Etna division and Charles E. Paul was elected to the Markle division directorship. During the year the company spent $2,900 for new construction, collected $19,826 in cash and paid out $18,845.53, leaving a balance of $1,017.06. The assets are estimated at $59,083.77.

Miscellaneous.

KENTON, OHIO—With between 1,200 and 1,500 subscribers already signed, organization of the Ada Farmers' Mutual Telephone Co., embracing portions of Allen, Hancock and Hardin counties, has been perfected. Rev. W. T. Shaw, Ada, and Ira Moser, west of Kenton, have been elected president and vice-president.

Formation of the corporation is said to be the outgrowth of protests against alleged excessive rates charged by the Ada Telephone Co.

Among the communities represented in the new Ada movement are: McGuffey, Alger, Dunkirk, Ada, Dola, Lafayette and Harrod.

POLO, ILL.—The Polo Telephone Co. will move its offices to the Polo State Bank building as a result of joint action taken by the directors of the telephone company and the Polo State Bank board, it is announced by L. E. Bacon, president of the Polo Telephone Co. The office rooms in the entire south side of the second story of the building will be occupied by the telephone company when the change is effected within the next few months.

The Telephone Business for Telephone Men

WE firmly believe in the Protective Measures advocated by the United States Independent Telephone Association and the various State Associations, with respect to Telephone Financing.

***Along these conservative lines only*—we are interested in assisting Telephone Companies in connection with Mergers and Refinancing.**

Our advisory-engineering, report and valuation service is directed by Mr. Charles W. McKay, a Consulting Telephone Engineer of over twenty years' experience.

We invite correspondence with respect to your own individual problems.

White, Weld & Co.

Public Utility Bankers for 25 Years

134 South La Salle Street

NEW YORK CHICAGO BOSTON

Texas Meeting Features Financing

Mrs. Allen Chase, Hillsboro, chief operator, Texas Telephone Co., read a paper on "Local Operating Methods." This was well received, since it gave much enlightenment on the very problems the operators are encountering every day in the work.

"Development and Sale of Local Service" was the subject of a talk by F. C. Bookout, Cleburne, district traffic manager, Southwestern Bell Telephone Co. He outlined many ways in which the traffic department might assist the commercial department in selling telephone service.

Annual Luncheon on Thursday.

At the annual luncheon there were 334 telephone people, their guests and friends present. J. B. Earle, Waco, president, Texas Long Distance Telephone Co., was toastmaster. The music was furnished by the Texas Hotel Orchestra.

The luncheon entertainment began with a musical comedy entitled "Uproar Grand" by Sam Losh, Fort Worth, music instructor and song leader Fort Worth Rotary Club, assisted by several singers.

(Continued from Page 18)

A telephone playlet was presented by three young women, depicting the telephone manners of prominent Independent telephone men in Texas. It was most amusing and the young women received much applause. The playlet was put on by Misses Faye Daniel, Lybbye Ewing and Clara Trigo, three employes of the Southwestern Bell Telephone Co.

Final Session of Traffic Conference.

At the third and last session of the traffic conference on Thursday afternoon D. J. Johnson, Santa Anna, president of the Santa Anna Telephone Co., presided.

Mrs. Emma Gayle, Tyler, traveling chief operator, Gulf States Telephone Co., read a paper on "Selecting and Training Operating Employes" in which she outlined the qualifications necessary for good operators and made many valuable suggestions to how they should be trained.

"Toll Center Operating" was the subject of an interesting talk by Miss Willie Campbell, of the West Texas Telephone Co., Brownwood.

R. B. Canady, Brownwood, traffic superintendent, West Texas Telephone Co., talked on "Cooperation Between Toll Centers and Tributary Officer."

H. B. Whatley, Dallas, toll service supervisor, Southwestern Bell Telephone Co., under the subject of "Summing Up" briefly reviewed the traffic program during the convention.

C. A. Shock, Sherman, vice-president and secretary, Northern Texas Telephone Co., was the last speaker on the program and had for his subject, "What We Owe Our Employers." He told the operators that the best results could be obtained by them going back to their respective duties and putting into practice the valuable education they had received at the conference.

Business Session of Convention.

The business session of the convention was held on Friday morning. The minutes of the previous meeting were read and approved and then President Still called for the reports of the officers.

The secretary's report showed an increase in membership during the past year, and an increased attendance at the district meetings and also at this convention.

The treasurer's report showed the association to be in better financial condition than at any previous time.

Resolutions on Securities Recently Issued.

The committee on resolutions then presented the following resolution:

Whereas, promoters are active in many of the states in the Union in acquiring Independent telephone properties and issuing and selling bonds and other securities against such properties, and

Whereas, the bonds and other securities being issued and sold to the investing public by such promoters are, in many cases, issued against inflated valuations of such properties and without due provision for all the necessary operating and other expenses to properly maintain and operate the property so as to render adequate service to the public, and particularly without adequate provision against the inevitable depreciation of such properties, and

Whereas, such bonds and other securities so issued are, therefore, not in keeping with the safe and conservative financing policy that is a characteristic of the telephone industry. Now, therefore,

Be It Resolved:

First, that under such circumstances it is the duty of this association, for the protection both of the investing public and of the financial stability of the telephone industry in this state, not only to take note of these conditions, but to call them to the attention of the investing public, and

Second, that it be pointed out to the investing public that in many cases the earnings of the telephone company, applicable to the payment of interest on bonds or dividends on stock issued and offered to the public by such promoters, are shown in the statements given out by such promoters without due regard for adequate depreci-

Atlanta
Baltimore
Boston
Buffalo
Chicago
Cincinnati
Cleveland
Dallas
Detroit
Indianapolis
Kansas City
Los Angeles
Milwaukee
Minneapolis
New Orleans
New York
Philadelphia
Pittsburgh
San Francisco
St. Louis
Syracuse
Seattle
Washington, D. C.
Berlin, Germany

Investigations Reports Valuations

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ASSOCIATED TELEPHONE AND TELEGRAPH COMPANY
KANSAS CITY, MISSOURI
United States of America

The regular quarterly dividend of $1.75 a share on the 7% Preferred Stock has been declared payable April 1, 1927, to the stockholders of record as of March 31, 1927 at 3 P. M. The books will be closed to transfer on March 25, 1927 and reopened on April 1, 1927.

(Signed) V. E. CHANEY,
Treasurer.

THEODORE GARY AND COMPANY
KANSAS CITY, MISSOURI

Seventy-fifth Consecutive Quarterly Dividend

The regular quarterly dividend of $3.00 a share on the Common Stock; $2.00 a share on the Preferred Stock, has been declared payable April 1, 1927 to the Stockholders of record as of the 31st day of March, 1927, at 3:00 p. m. The books will be closed to transfer on March 25th and reopened on April 1, 1927.

(Signed) H. L. GARY,
First Vice-President and Treasurer.

OPPORTUNITIES!

Rates 8 cents per word, payable in advance. Minimum charge $1.50. Send cash with order.

"REBUILT" TELEPHONE APPARATUS

and exchange equipment saves you 30 to 50 per cent—quality and efficiency guaranteed.

EVERYTHING YOU NEED

for the installation and operation of a complete exchange—Magneto or Central Energy.

TWENTY YEARS' SUCCESSFUL OPERATION

of our "Rebuilt" Equipment Department puts it past the experimental stage. **Ask for our Free No. 78 Bargain Bulletin.**

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"Rebuilt" Equipment Department

Premier Electric Company

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"REBUILT" when connected with PREMIER means something.

RECONSTRUCTED EQUIPMENT

Western Elec. No. 1317 2 or 3-bar 2500 ohm Bdg. compacts @	$ 8.25
Western Elec. No. 305 2 or 3-bar 2500 ohm Bdg. hotel sets @	6.50
Western Elec. Co., Latest Pony type 2 or 3-bar 2500 ohm Bdg. compacts @	9.00
Western Elec. No. 20 desk set with No. 315 type 2 or 3-bar 1000-1600 or 2500 ohm ringers @	11.50
Note: All of the above Western Elec. sets are equipped with No. 250 Transmitters and No. 143 Rec. No. 13 Ind. Coil, etc.	
Kellogg local or Common battery transmitters complete @	1.10
Western Elec. Co., No. 250 Transmitters complete @	1.35
Kellogg No. 28 desk set with Western Elec. 3-bar 1000-1600 or 2500 ohm signal set with outside post connections @	10.00
Western Elec. Co., Ball type combine line drops and jacks, per strip of 5 @	7.50
Western Elec. Ball type self-contained combine line drop and jack @	1.50

Write for our Bulletin

REBUILT ELECTRIC EQUIPMENT CO. Not Inc.

1940 W. 21st St., Chicago

HELP WANTED

WANTED—Man under thirty with experience in telephone apparatus and circuit design, also familiar with cable and line plant layout and construction, to enter new line of work where above experience is necessary. Give complete information and salary expected. Address 6835, care of TELEPHONY.

WANTED TO BUY

WANTED TO BUY—Telephone plant in Indiana where one thousand dollars cash will make a down payment. Address 6844, care of TELEPHONY.

WANTED TO BUY—Small telephone exchange, southern states preferred. State details and price. Address 6842, care of TELEPHONY.

Rebuilt Magneto Telephone Equipment

A limited number of the following rebuilt equipment in very fine condition.

Stromberg - Carlson, ball swivel, local battery desk stands only, complete with receiver, transmitter and new cord..... $4.00

Dean desk stands only, local battery, non-breakable, with induction coil, complete with receiver, Dean or Kellogg transmitter and new cord..... 4.00

Dean compacts, 3 or 4 bar gen., 1000 or 1600 ohm ringers 6.00

Stromberg-Carlson Desk Sets, with misc., good signal boxes, 3 or 4 bar gen., 1000 or 1600 ohm ringers 6.25

Dean desk sets, 3 or 4 bar gen., 1000 or 1600 ohm ringers 6.50

Write for our Latest Bulletin. It's free.

Electrical Instrument Repair Co.

1721 W. Adams Street Chicago, Ill

SWITCHBOARDS

Dean 30-line P. B. X. switchboards, 20 lines, 2 trunks equipped (completely rebuilt with late Stromberg-Carlson equipment) $125.00

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ation on the property securing such bonds or stock, and

Third, that the prospective investor is cautioned to examine such security offering closely with respect to this item of depreciation and to give particular and cautious scrutiny to circulars and advertisements offering telephone securities for sale on which:

(a) The amount allowed in the expenses of the company for depreciation of the property is clearly stated, or

(b) The amount allowed in the expenses of the company for depreciation of the property is calculated at less than the rate of depreciation that long years of experience in the telephone business has proved to be necessary for the protection and perpetuation of the property against obsolescence, inadequacy and wear, and

Fourth, that for the information of the investor it be pointed out that experience has proved that an annual charge of around 5 per cent or more of the cost of reproducing the property is necessary to adequately provide for depreciation expense (and that around 6 per cent is considered necessary for small telephone plants); and that the investor can readily ascertain whether or not adequate provision has been made for depreciation by taking that amount stated as the cost of reproducing the telephone property new and calculating depreciation thereon at around 5 per cent or more and including the figure thus arrived at in the annual expenses of the company and thereby ascertaining what amount is remaining after depreciation as actually available for other expenses, taxes, and for bond interest, dividends and surplus earnings.

Another resolution related to the deaths of Anson Miller, of the Chambers County Telephone Co., Anahuac; J. W. Murphy of the Gonzales Telephone Co., Gonzales; and Mrs. C. D. Longserre, wife of Chas. D. Longserre, of Frankston Telephone Co.

The resolutions were then put to a vote and were unanimously adopted.

The committee then presented resolutions extending a vote of thanks to the Texas Hotel, Fort Worth Chamber of Commerce, the press, the manufacturers and dealers having exhibits, and to all those who took part in the programs. The resolutions were voted on and passed unanimously.

The meeting voted to request the committee on the Bell toll commission agreement contract to continue its work for another year.

The nominating committee then presented a list of names of those recommended as directors for the ensuing year. No other nominations being presented, on motion the nominees recommended by the committee were elected.

A motion was made and carried unanimously that the board of directors select Fort Worth as the place for 1928 convention.

President Still announced that immediately following adjournment, a meeting of the newly-elected board of directors would be held to elect officers.

At the directors' meeting the officers were all re-elected as previously stated.

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